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GRADED SURGERY IN COMMON DUCT STONES*

BY HOWARD M. CLUTE, M.D.†

ALTHOUGH many details of the physiology of the liver are as yet incompletely determined, it is, nevertheless, increasingly evident that common duct obstruction, be it complete or partial, extending over long periods of time, produces a serious derangement of liver function and that some degree of liver failure accompanies every case of common duct obstruction of any duration. If the patient in whom this obstruction is present is old and feeble or is suffering from other difficulties as, for example, cardiorenal vascular disease, the effect of liver failure is much more significant and its outcome is frequently most serious.

It is common experience that the sudden relief of common duct obstruction of long duration may be followed by a serious collapse known as acute liver failure or liver shock. The exact cause of this condition is not known. It has been suggested by Ransohoff[1] that it arises from traction on the common duct, the portal vein and the hepatic artery incident to operation on the biliary passages. Ravdin[2], however, believes that this so-called liver shock following drainage of the common duct is due to the liberation of depressor substances arising in damaged liver cells by the circulatory alterations in the liver substance accompanying relief of common duct obstruction. It is well known that damaged liver tissue contains many such depressor substances which have a serious effect on the blood pressure if set free in the circulation. Whatever the cause of liver shock, its clinical occurrence is a definite entity and every effort must be made to avoid it.

The tendency to hemorrhage which accompanies obstructive jaundice is a second factor rendering operation more serious than in the average situation. It is possible that this tendency to bleed is also related to the presence in the blood stream of products arising from liver tissue damaged by long standing common duct obstruction.

Any test which will be of help in predicting the tendency of a jaundiced patient to bleed is of great value. In jaundice of some duration the coagulation time and the bleeding time may be definitely increased above normal; yet we have had the experience of having no bleeding following operation on jaundiced patients in whom the bleeding time and the coagulation time were distinctly increased. On the other hand, we have had serious postoperative bleeding in jaundiced patients in whom bleeding and coagulation time were normal. We have realized, therefore, that in obstructive jaundice some other means than a determination of the bleeding and coagulation time must be available if we are to know in advance whether a patient will bleed at operation. Dr. Robert Linton[3] of Boston has recently proposed the use of the sedimentation rate as an index of the hemorrhagic diathesis in jaundiced patients. Linton believes that in such patients with a normal, slow, sedimentation rate there is no hemorrhagic tendency. If, on the other hand, the jaundice has produced some interference in the clotting ability of the blood, he finds the sedimentation rate rapid. Our personal experience with this test to date has been limited to 14 patients. The sedimentation rate was within normal limits in 12 of these cases and in 2 it was rapid. Postoperative bleeding occurred in each of the two patients in whom the rate was rapid and failed to occur in the other patients in whom it was normal. Such a small group of cases does not warrant any general deduction and yet it does in some degree confirm Linton's work and it has given us at least a suggestion that this is a test which will prove of value in predicting the tendency of jaundiced patients to bleed.

Kidney failure in obstructive jaundice arises from the presence in the blood stream of concentrated bile pigments, which presumably results in a chemical nephritis. The inadequate fluid intake which is so commonly present is an added factor in the onset of renal insufficiency and, finally, with the loss of the detoxifying function of the liver itself, a further strain is thrown upon kidney excretion. Kidney failure, with its increase in blood nitrogen and blood urea and diminished phenolsulphonephthalein output as evidences of its presence, may well be the determining factor in a fatal result after operation for common duct obstruction.

Old patients with common duct obstruction, with impaired liver function, with a tendency to renal insufficiency and with the possibility of postoperative hemorrhage are obviously most serious risks for extensive surgical procedures in the upper abdomen. Operations in the region of the diaphragm on patients over sixty-five years of age are notoriously serious since they

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so commonly are followed by pulmonary complications and it is generally agreed that in any patient of sixty-five and more years of age any such procedure must be undertaken only after the establishment of the most positive indication. Furthermore, such surgery as must be attempted in these patients must be maintained at the very lowest level of magnitude which will produce the desired results.

In operating upon a patient with gall stones in the gall bladder and stones in the common duct, it is the natural desire of the surgeon to remove the gall bladder as the focus in which the gall stones probably arose and also to open the common duct, remove the obstructing material, and drain it. In patients who are thin, and in whom the approach to the gall bladder and the duct is readily made, such a procedure can frequently be carried out with dispatch and ease. We believe, however, that in the older, poor-risk patients with biliary tract obstruction and infection, the addition of cholecystectomy to the relief of common duct obstruction, even though the procedure is technically simple, may well be the added factor which produces a fatal result. Conservative surgery in these patients is indicated and its use is well repaid by the added smoothness of convalescence and freedom from complications. Objection to simple drainage of the gall bladder and removal of the stones in such a patient may well be made on the grounds that stones may be overlooked or new stones may form in the infected viscus, which will later enter the common duct and cause further serious obstruction. It is admitted that such a possibility is present and in fact this did occur in one of the cases reported herewith (Case II). We believe, however, that, in patients of the age which we are considering, it is preferable to take the risk of such later complications, which will be rare, than to add the chance of a fatal outcome from a more extensive primary operation.

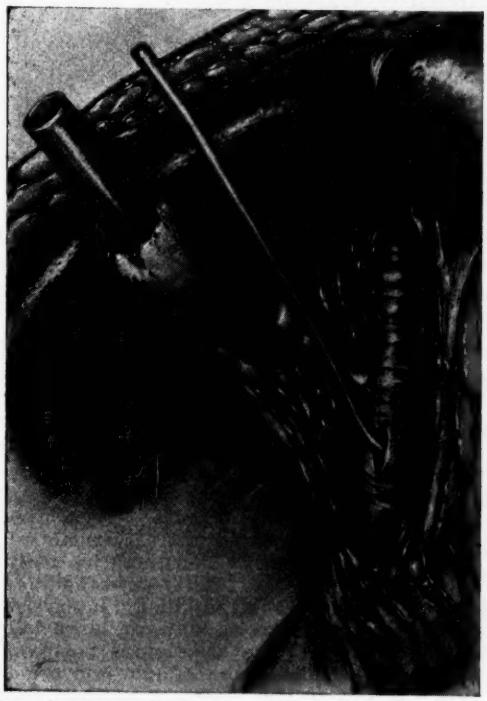
The preparation of debilitated patients for the surgical relief of common duct obstruction requires most careful attention in each case. It is fortunate that the three great factors threatening the result in these cases are all remedied by the same preoperative measures. The glycogen reserve in the liver may be elevated, to some degree, by the use of intravenous glucose. Products arising from damaged liver tissue are removed in some measure by the use of intravenous salt solution and these same measures tend to remove, to some degree, the retained products of liver damage that produce alterations in the clotting ability of the blood. Finally, the kidney insufficiency is improved by the increased excretion provided by the use of intravenous salt solution and glucose.

The preparation of these patients, then, consists of the administration by vein and subpectorally of relatively large amounts, at least three litres per twenty-four hours, of salt solution with 75 to 100 grams of glucose. The use of a diet rich in carbohydrates and the administration of as much fluid by mouth as is comfortable to the patient are valuable measures in enlisting glycogen reserve in the liver. If the patient's condition will permit, it is highly desirable that for two to three days before operation he shall be gotten out of bed at least into a chair and, if possible, be made to walk about the ward. This, we believe, materially improves the cardiovascular tone and places the patient in a much better condition to withstand the strain of any operative procedure.

The operation must be predicated on the principle that the major difficulty from which the patient is suffering is an obstruction to the common duct. A type of anesthesia which adds no appreciable strain to the excretory functions of liver and kidney must be used, and novocaine, either by spinal or by regional anesthesia, best fulfills these requirements. An incision is made in the right upper abdomen; a small pack is at once introduced over the duodenum and the duodenum retracted toward the midline. Allis or Babcock forceps are placed upon the gall bladder and gentle upward traction is made. By these procedures the course and outline of the common duct can usually be distinguished at once. A short incision in the common duct is now made and with suction the retained bile and detritus are removed. The obstructing stones are extracted with appropriate stone forceps and careful investigation of the course of the duct is carried out to make certain that all stones are removed. Irrigation with a catheter and the passage of sounds into the duodenum

Removal of stones from common bile duct and the gall bladder.

constitute a most convenient method for this purpose. A procedure such as we have described should take but relatively few minutes. Attention may now be directed to the gall bladder. If the patient's condition is very serious, we believe that the gall bladder and its contained stones, if it has any, may be left strictly alone. On the other hand, if the patient's condition seems to warrant it, an incision is made in the gall bladder and the stones removed. Careful palpation inside and outside the gall bladder reveals whether the viscus is entirely emptied. A rubber tube is inserted into the gall bladder, a



Tubes placed in gall bladder and common bile duct after removal of stones.

short arm T-tube is placed in the common duct, a cigarette drain in the kidney pouch beneath the common duct, and the abdomen is closed in layers.

Following the operation, intravenous and subpectoral glucose in salt solution is administered for the first few days. Careful observation of the wound is necessary following operation and any tendency to ooze is treated at once by the transfusion of relatively small amounts—250 c.c. to 350 c.c.—of whole blood, repeated as necessary. Sedimentation rates should be taken every second or third day postoperatively to serve as an index of changes in the clotting ability of the blood. An increasingly rapid rate denotes a tendency to bleed and warrants the transfusion of the patient with whole blood at once.

This divided operation in common duct obstruction has been used recently in the three cases which we here report; it has given us such satisfaction in the excellent results obtained in cases deemed nearly hopeless as operative risks that we present the histories and this discussion to recall to mind an operative plan which has been recommended by many surgeons but has, we believe, been too infrequently used.

Case I—No. 21602—Male, aged 66. The present difficulty had its onset three years ago with epigastric distress, recurring until the present acute attack. Three months ago the patient had an attack of severe, cramping epigastric pain, coming on immediately after food; vomiting caused instant relief. The attacks were followed by jaundice. He lost twenty-four pounds in the previous twelve months. Physical examination showed a poorly nourished male with jaundice, a pulse rate of 56, and tenderness in the epigastrium; it was otherwise negative. X-rays of the gall bladder after intravenous dye showed no filling of the viscus. Bilirubin 3, Wassermann reaction negative, non protein nitrogen 50. *Operation*—Dr. Clute. Spinal anesthesia. The gall bladder was thick-walled and distended, containing many stones. The common duct was nearly one inch in diameter and contained two stones, one centimeter in diameter. Pancreas firm and nodular; much hepatitis. The common duct was opened and the stones removed. A small T-tube was inserted. The gall bladder was opened and the stones removed. A tube was inserted for drainage. Recovery from operation was satisfactory and uneventful.

Case II—No. 14550—A female patient, aged 81, had had attacks of indigestion for twenty years, recently more severe, accompanied by nausea and followed by fever of one hundred and two and one hundred and three, with definite chills. Jaundice had been present during the recent attacks. *Operation*—Dr. Lahey. Regional anesthesia. The gall bladder was twice the normal size and contained many stones. The common duct was markedly enlarged and contained stones. The stones were removed from the common duct and from the gall bladder. Recovery from operation was very satisfactory. The patient did very well until two and a half years later, when chills, fever and jaundice recurred. Three years after the first operation, at the age of eighty four she was re-operated upon by Dr. Lahey under regional anesthesia. The gall bladder was again found to be distended but contained no stones. The common duct was dilated to the diameter of the thumb. The gall bladder was removed from above downward; the cystic duct and artery were ligated separately, the common duct was then opened and a stone one centimeter in diameter removed. Following operation a blood transfusion was given. Recovery from the operation has been most satisfactory and the patient is now alive and well at the age of eighty-five, one year following the last operation.

This case demonstrates the fact that, as is well recognized, conservative operation of drainage of the gall bladder in the presence of stones may result in the later formation of stones or the passage of more stones into the common duct. Such an occurrence in this case, however, does not, in our opinion, militate against the divided operation in obstructive stones of the common duct and must be considered simply as an unusual and rare happening in a patient of her age.

Case III—No. 19280—A female patient, aged 73, complained of epigastric distress, gas and pain which had been present for ten years. Recently the attacks had been accompanied by itching of the skin, clay-colored stools and jaundice. Intravenous gall bladder dye and x-rays revealed no filling of the gall bladder. *Operation*—Dr. Clute. Spinal anesthesia. The gall bladder was dilated, thick walled, and con-

tained many small stones. The common duct was greatly dilated. The gall bladder was opened and the stones removed, the common duct opened and a common duct stone impacted at the ampulla of Vater removed. A short T-tube drain was inserted in the common duct, a tube drain inserted in the gall bladder and the wound closed. Convalescence and recovery from the operation have been most satisfactory in every way.

REFERENCES

1 Ransohoff, J. L.: Ann. Surg. 48:550, 1908.
2 Ravdin, I. S.: Arch. Surg. 18:2191, May 1929.
3 Linton, R. R.: Ann. Surg. 91:694, May 1930.

NOTE:—Since this paper was written two further serious-risk jaundiced patients have been operated upon in this conservative method with excellent recoveries.

RESULTS WITH THE FRIEDMAN MODIFICATION OF THE ASCHHEIM-ZONDEK TEST FOR DIAGNOSIS OF EARLY PREGNANCY*

BY MAX DAVIS, M.D.,††† AND ELISABETH W. WALKER, A.M.†††

THE Aschheim-Zondek test for the diagnosis of early pregnancy and for its differentiation from other pelvic conditions has come to be generally recognized as very reliable. In various reports in the literature concerning more than 5000 cases[1], its accuracy has generally averaged approximately 98%†. This test presumably depends upon the fact that shortly after conception occurs, there is a large excretion of hormone of the anterior pituitary gland into the urine, and that if this urine is injected into immature white mice, ovulation will take place. This test, however, has certain distinct disadvantages, despite its great delicacy and its high degree of accuracy. In the first place, one must constantly breed these mice in order always to have on hand a sufficient supply upon which to do the required tests. If, however, the mice are not used before the twenty-fourth day, they mature and are of no further value. Secondly, the time interval of 100 hours required for the execution of the test is a disadvantage in certain cases, for example, in ectopic pregnancy. Finally, at least five mice should be used for each test, and each mouse must be injected six times, over a period of three days, thus necessitating a rather tedious technic.

A new method has been elaborated which altogether eliminates these disadvantages††. This method involves the use of rabbits rather than mice as test animals. The "method rests upon three fundamental facts:

1) The ovaries of an isolated, unmated female rabbit contain neither corpora lutea nor corpora hemorrhagica, inasmuch as the rabbit does not ovulate spontaneously, but only after coitus.

2) The urine of pregnant women contains some substance, or substances, which simulate in their biologic effects the anterior lobe of the pituitary.

3) The ovary of the rabbit quickly responds to the injection of these substances by the formation of corpora lutea or corpora hemorrhagica."

Using these facts, which had been determined by various investigators, including Friedman himself[3], Friedman and Lapham[2] developed their technic for the use of rabbits for the test for the diagnosis of early pregnancy. Their technic and their methods for the proper selection of animals fit for the test are best described in their own words:

"The materials and equipment necessary for the performance of the proposed test are: (1) an ordinary bedpan specimen of urine, (2) a five c.c. syringe, and (3) an unmated, mature female rabbit. The urine is injected intravenously thrice daily for two days in 4 c.c. doses. Forty-eight hours after the first injection the rabbit is killed. If the ovaries contain either fresh corpora lutea or large bulging corpora hemorrhagica, the reaction is positive and the patient who furnished the sample is presumably pregnant. If the ovaries contain neither corpora lutea nor corpora hemorrhagica, but only clear, unruptured follicles, regardless of their size, the reaction is negative.

"*A. The selection and maintenance of rabbits.*—Inasmuch as the period of gestation in the rabbit is from thirty to thirty-two days, one may be certain that adult females strictly isolated from males for this period of time will not be pregnant, and that their ovaries will not contain either of the structures which characterize a positive reaction. Yet, if a number of females are kept together, it is possible that one doe may be 'hopped' by another in heat and enter a period of pseudo-pregnancy which would last for about twenty days. (4) It is desirable, therefore, that the females be kept isolated not only from males, but from other females as well by placing them in individual cages. It is not a difficult matter to arrange with a rabbit dealer to have a sufficient stock of females kept isolated in just such fashion for the desired period.

". . .

"In case one has not had the opportunity to isolate the rabbits for the desired period, and it is found necessary to perform a test, it is safe to use a rabbit that has been isolated in the laboratory for only eight or ten days. Even if the rabbit in question had had coitus just before it was obtained, the corpora lutea of pregnancy or pseudo-pregnancy would then be at least eight or ten days old, and could not be confused with the fresh corpora lutea

*From the Robinson Memorial, the obstetrical department of the Massachusetts Memorial Hospitals.

†The single exception to this statement is the article by Mazer and Hoffman in J. A. M. A., 96:19, Jan. 3, 1931.

††We shall not here go into the details of the usual Aschheim-Zondek technic, which is well described, and the bibliography of which is given, in an article by Benjamin Parvey, New Eng. J. Med. 203:1121, Dec. 4, 1930, and in an article by H. S. Finkel, *ibid.* 204:203, Jan. 29, 1931.

†††Davis—Assistant in Obstetrics and Gynecology, Boston University School of Medicine. For record and addresses of Davis and Walker see "This Week's Issue", page 596.

or corpora hemorrhagica produced by the injections of an active urine.

". . .

"It is understood, of course, that once the rabbits have been isolated for a sufficient length of time, they may be used at any time afterward.

"*B. The storage of the samples and the injections.*—It is desirable to place the specimens on ice soon after collection. After the urine has become cooled a precipitate is likely to settle. If the urine is filtered while cold, the precipitate may be removed without causing a noticeable loss of potency of the sample. Before each injection it is necessary to warm the sample in hot water for a few minutes so as to prevent shock to the animals. One must guard against overheating the urine, however, for prolonged heating at 45°C., or more will decrease the potency of the specimen. After each injection the urine should be returned to the cooler. No aseptic precautions are necessary either in the storage of the samples or during the process of the injections; if the material is handled in the manner just described, the potency of the active samples will not be materially impaired at the end of six days."[2]

This rather cumbersome technic of injecting the rabbit thrice daily for two days with 4 c.c. doses was modified by Schneider[5], who employed a single intravenous injection of 5 to 7 c.c. of a voided first morning specimen of urine. We at first experienced a little difficulty with this amount, and began using 10 c.c., as Schneider, in a personal communication, advised us to do. Furthermore, instead of waiting forty-eight hours before examining the ovaries, Schneider autopsied his animals at the end of 24 to 36 hours. We have followed the latter method and in most of our cases we have had no difficulty. In one case, however, an animal operated at the end of 20 hours, instead of the customary 30 hours, was apparently negative. The rabbit died during the night, and on being reëxamined in the morning it was found to be positive. This opened the possibility that some apparently negative rabbits might later become positive, and therefore, we have reoperated several negative animals at the end of 48 hours; except in one case, however, we have found no change in the results. As already indicated, we have not sacrificed our animals for each test, but have merely operated them and closed them after examining the ovaries. Those that were negative have frequently been used for two or three subsequent tests without causing any inaccuracy in the results. We have not, as yet, made further use of any of the rabbits that gave positive results, but we intend doing so as we proceed with further investigation of the test.

With reference to the toxicity of the specimens, we have not as yet found any specimen of sufficient toxicity to kill the rabbit. Friedman and Lapham found three of 112 specimens toxic. We have not used any preservative in the urine, have insisted that all specimens be collected in sterile bottles, and have filtered all the urines through a Berkefeld filter*. Perhaps this may account in some degree for our lack of trouble thus far.

The reading of the test is very simple as one becomes accustomed to it†. This test is quite as delicate as the original Aschheim-Zondek test. According to Schneider, "The data obtained in these cases indicate that the reaction appears at approximately 18 to 21 days following the intercourse responsible for the pregnancy. If these observations are proved to be correct by subsequent investigation, they will serve as additional evidence to substantiate the theory[6, 7] that the hormone causing the reaction may be dependent on the development of the decidual tissue instead of entirely on the anterior pituitary product, as was at first maintained[8]. Further evidence supporting this contention is derived from the fact that the only conditions other than pregnancy causing the reactions are hydatidiform mole and chorio-epithelioma[9]." The test becomes negative rapidly postpartum, most cases being negative within 48 hours after delivery. Thus, this test serves as a good method for determining the death of the ovum. (See case number 43 below.)

There are now in the literature three articles reporting the experience with this modification of the Aschheim-Zondek test††. They report a total of 308 cases. Of these cases, 100 were used as controls, 50 being known positive cases and 50 known negative cases. Of the remaining 208 cases, 93 gave positive reactions, of which 83 have been followed to determine pregnancy, an error being discovered in only two. Both of these cases later gave a negative result, the errors apparently being due in one instance to faulty marking of the rabbit, and in the other to an improper interpretation of the macroscopic findings. Of the 115 negative cases, 109 were followed and pregnancy was definitely excluded in 103 cases. The other six that were followed gave positive results later, due apparently to the fact that the first urines were obtained so early in the pregnancy that there was insufficient concentration of the hormone to cause a positive reaction.

Our own series of cases consists of tests performed upon sixty-five patients†††. Seven of these cases were positive controls, a definite diagnosis of pregnancy having previously been made

*We have not, however, observed any sterile precautions in the injections, as they are entirely unnecessary. It is interesting to note that in several cases where this test was checked by the mouse method, the mice died from a toxic urine whereas the rabbits survived.

†In Schneider's article there is an excellent colored plate giving a very accurate picture of the results to be expected. In the negative ovaries, however, there are frequently much larger follicles present than in the plate mentioned, and unless one expects to find them, they may be incorrectly interpreted as false positives.

††These are the articles by Schneider, and by Friedman and Lapham, already quoted above.

†††Since this article was submitted for publication, we have performed 100 more tests with an accuracy of almost 98%.

clinically. All the remaining cases were unknown, the specimens having been submitted for the purpose of establishing the presence or absence of a pregnancy. Practically all of these cases have been followed, and in all of them the correctness of the diagnosis has been confirmed. The results are summarized in the two following tables:

TABLE I

CASES PROVED POSITIVE

Duration of Pregnancy	Number of Cases
4-6 wks.	11
6-8 wks.	7
2-3 mos.	4
3-4 mos.	0
4-5 mos.	5
5-6 mos.	2
6-7 mos.	1
Total	30

TABLE II

CASES PROVED NEGATIVE

Types of Cases	Number of Cases
Missed 1 period	9
" 2 periods	11
" 3 "	4
" 6 "	2
" 8 "	1
Last period irregular	4
Fibroid	1
Miscarriage	1
Total	33

As can be seen from Tables I and II, in most cases the diagnosis of a positive pregnancy was established quite early, and usually before it could be definitely determined by the usual clinical findings. In the negative cases, more than one-half of the patients had missed two or more periods and were quite concerned about the possibility of a pregnancy, yet only four of these cases were in the age period where the question of the menopause could arise.

In addition to the correct positive reactions listed in Table I, two false positives were obtained. One of these cases was that of a patient, aged thirty-five, who had never before been pregnant, and in whom ectopic pregnancy was suspected. She had had a normal period 25 days before the test was performed, and six days before the test she had begun to complain of pain in the right lower quadrant. On physical examination she was rather tender in that region and a tender mass was found in the right vault close to the uterus. The patient was operated upon three days after the test and a hysterectomy was performed for a fibroid uterus, no pregnancy being found*. The second case was that of a woman, aged thirty, who had not menstruated since the birth of a child four and one-half months before. There was some question of a tuberculous lesion in her right lung. On being followed, she proved not to be pregnant. Both of these cases occurred in the early stages of our work, and it is our opinion that they were due to lack of control of the animals used. Both of the rabbits were injected on the day that they were brought into the laboratory, and both were larger than the average rabbit used by us. It is, therefore, probable that they may have been in contact with a male or had a pseudo-pregnancy†, and as a result a false positive was found on examination of the ovaries.

In this series, there were several cases which we believe will be of interest to report in greater detail.

CASE No. 3. E. A., para IV, aged 41. Catamenia began at 13, had always been regular every 28 days, lasted 5-6 days; she used three napkins daily, and never missed a period except when pregnant. The last period was on December 16, 1930. She had no nausea or vomiting, no frequency, but did have some fulness and soreness of the breasts. There were no menopausal symptoms. Test performed on February 7, 1931, was negative. The following week she began to have some morning nausea daily, and vomited on two occasions. A repeated test on February 17 was again negative. The patient had a normal period on March 1.

CASE No. 11. I. D., para III, aged 32, came to the office on March 9 complaining of continuous flowing beginning at the time of her expected period on February 3. The previous period had been on January 25. The patient also complained of some pain in the lower abdomen, especially on the right side. No other symptoms were present. Vaginal examination showed a cystocele and rectocele; cervix lacerated, no color changes, firm; uterus was enlarged, firm, irregular. A tentative diagnosis of fibroid was made. The patient continued to bleed. A test performed on March 11 was positive for pregnancy. On March 18, the bleeding still continuing, the patient was sent into the hospital, where dilatation and curettage showed the presence of decidual tissue. Examination under ether also confirmed the finding of a fibroid.

CASE No. 24. L. W., para V, aged 39, colored. Catamenia began at 16, was always regular every 30 days, lasted 4 to 5 days; she used 4 napkins daily, and had never missed periods before, except when pregnant. She has two sisters living, aged 42 and 44, who are still menstruating regularly, and her mother did not have her menopause until the age of 50. Last normal period on September 2, 1930. Towards the end of September the patient went to North Carolina, where she remained for five weeks before returning to Boston. She had no period in October, but stained for one day in November. She skipped December and January, when she visited a prenatal clinic. She stained for one day on February 2, 1931, but had no other symptoms of pregnancy and she had no menopausal symptoms. She continued to attend the prenatal clinic until March 16, when a test showed no pregnancy. Vaginal examination revealed the uterus to be small, anterior, and soft.

CASE No. 43. W. R., para I, aged 31. Last period on January 17. At 10 P. M. on April 7, patient began to flow, and saturated two napkins. She was put to bed and given morphine and sodium

*We wished to test more cases with fibroids, but were able to secure only one case, which was negative, the finding being confirmed by a hysterectomy performed for the fibroid. The ordinary Aschheim-Zondek test does not give false positives in these cases, and it is therefore probable that this modification also will not give them, as both depend upon the same substances for their action. Eight cases of carcinoma of the genitalia have been reported by the other authors, and all were found to be negative.

†See *Section A* in the quotation from Friedman and Lapham.

amytal. The flowing stopped shortly afterwards, and there was no flow until April 9. At 4 P. M. on that day she had suddenly begun to have cramps which continued to increase in severity. She began to flow again at 5 P. M., and at 7 P. M. passed practically the complete ovum. Examination of the uterus with the finger, under gas-oxygen anesthesia, showed the cavity to be completely empty. Test of the first voided urine on the morning of April 9, both by the rabbit and mouse methods of the Aschheim-Zondek test, were both negative. This would seem to indicate that the ovum had apparently died several days before, and that the miscarriage was a result of this death.

Case No. 45. R. G., para I, aged 23. Catamenia began at 14, always regular every 28 days, lasting 4 to 5 days; she used 3 napkins daily. Last period on September 17, 1930. Her husband had been drowned in an accident at sea in March, 1931. Patient believed she was pregnant and was going to have a child. On April 11, she had some bleeding by vagina and was sent into the hospital for a question of placenta previa. Inspection of the abdomen showed it to be enlarged, apparently to the size of a six to seven months' pregnancy, but palpation failed to reveal any foetus. Vaginal examination showed the uterus to be small, anterior, firm, regular, freely movable, and not tender. Test of urine by rabbit and mouse methods was negative for pregnancy. After the patient was reassured that she was not pregnant, the abdomen gradually flattened out and assumed a normal contour.

SUMMARY AND CONCLUSIONS

The test is performed by a single intravenous injection of 10 c.c. of the first voided morning urine into the marginal ear vein of a rabbit.

This technic is much more simple than the original Aschheim-Zondek technic, and the test can be read at the end of 24 to 36 hours, instead of at the end of 100 hours.

The test is very delicate and highly accurate. The development of methods for concentrating the hormone from the urine will probably enable diagnosis to be made at even shorter intervals.

It can be used for the differential diagnosis in the case of pelvic masses or neoplasms, and in menstrual irregularity of various types.

Early pregnancy can be ruled out in cases where some form of instrumentation of the uterus is to be undertaken.

Death of the ovum may be diagnosed, and, as its action is similar to that of the established Aschheim-Zondek test, it can be used to determine the presence of active placental tissue in incomplete abortions, hydatidiform mole, and chorio-epithelioma.

We wish to thank all the physicians who submitted specimens for examination, particularly Dr. William Konikov.

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ADEQUATE COUNTY HEALTH ORGANIZATION, TUBERCULOSIS CONTROL AND THE MEDICAL PROFESSION*

BY DONALD B. ARMSTRONG, M.D.†

I RATHER expect that all of you here today have been considering the problem of tuberculosis control and prevention for many years and probably I can bring you little that is new. More recently, you have no doubt heard a great deal about more adequate county health organization, and perhaps a further discussion at this time on tuberculosis, county health facilities, the proposed county health department, and the relation of all this to the medical profession, may constitute a form of monotony toward which you may be decidedly ill-disposed. On the other hand, even monotony may be a good thing, at least according to a recent description of this fairly frequent element in human existence. You perhaps have heard of the boy who was asked to define and illustrate a number of rather lengthy terms such as monogamy, monotony, and matrimony. One of his definitions ran as follows: "In Anglo-Saxon countries, each man is allowed but one wife. This is known as monotony."

Yet the time was never more opportune for concentrating attention upon our subject of today, for not only do we see more clearly the current and future needs of adequate health organization, but never before have there been presented quite such outstanding opportunities for a general advance in this important field of community organization.

THE NEED FOR MORE ADEQUATE ORGANIZATION

Of course, I need not take your time to review the history of local health organization in New York State, except, perhaps, to remind you that it was designed to meet the needs of three-quarters of a century ago. This, indeed, applies to most of the machinery existing today and inherited from the past.

This audience does not have to be reminded of the inadequacy and uneconomical futility of our highly localized health administrative units

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in villages, towns and small cities—units too small to provide resources or a sufficient population base for modern facilities, for up-to-date laboratory equipment, for adequate measures aimed at communicable disease control, institutional care, public health nursing, etc.

It is not necessary to tell you that already in this state, in Cattaraugus County and in three other counties, a more adequate system of full-time county health unit organization has demonstrated the wisdom and economy of this measure. Further, it is certainly no news to anyone here that we have had for some time permissive state legislation with state aid for county health facilities, and that compulsory county legislation is in all probability closely impending, a proposed measure approved by the State Department of Health, the leaders in the State Medical Society, the State Sanitary Officers' Association, the State Charities Aid Association, and many other important bodies. It is, of course, only a question of time, and there would seem to be little, if any, justification for further delay in the great majority of the counties throughout the state.

ESSENTIALS OF THE COUNTY HEALTH UNIT

Surely there is scarcely cause to emphasize the advantages and the essentials of a county health unit. It insures one responsible board in place of the many and diffuse boards and committees now splitting up, and one might almost say disintegrating the responsibility for health in the county. It should diminish duplication and overlapping and should make feasible, when that is necessary, the mobilization of all of the health forces in the county for concentration upon any conspicuous local emergency or any exceptionally threatened area. It should be associated with a full-time health commissioner, with such continuing assistance from local health officials as may be deemed appropriate or necessary. It should insure a balanced program and an allocation of funds, properly adjusted to meet the relative needs, and in recognition of the comparative values of health services throughout the community.

We have implied that the need for such a development in most counties is at present a great one. I think it might also be said that this urgency, and the burden inherent in a lack of more adequate facilities, are bound to manifest an increasing conspicuousness as time goes on. At the same time, the provision of adequate facilities now insures for the future a cumulative opportunity to take advantage of these increased community provisions for health conservation and disease prevention.

BASIC PUBLIC HEALTH SERVICES

In discussing any public health activity, it is usually an asset to locate it in the general framework for health construction. Is it one of the basic activities, such as sanitation? Is it a part of the preventive medical superstructure, such as health education? Or is it not yet allocated, not yet distinctly a part of public health practice, still in the no-man's land that exists between public health and private medical practice, for instance, or on some other doubtful borderline of the field of public health? (Examples of such borderline activities might be the free diphtheria immunization of all children without regard to economic status; or the free administration of insulin to non-indigent diabetics; or free artificial irradiation for all comers; or consultation and treatment services without cost to all cardiac cases, without financial investigation.) While these questions covering most phases of the county health program may advantageously be asked, yet it must be obvious to all students of public health that more adequate machinery is needed in any case, to meet the basic service requirements of the program as a whole. The advantages of enhanced facilities would be manifest in general sanitation, in the control of water supplies, sewage disposal, milk supervision, and related problems. The Governor, the Governor's Health Commission, and others have stressed the requirements for maternal, infancy, and child hygiene work. The necessity for greater coördination and generalization in the public health nursing field has been emphasized, as has the need for the more thorough extension of medical, nursing, health educational, and physical training facilities to the school population of the counties, particularly in the rural areas. Emphasis has also been placed upon the value of a more conscious effort at such a suprabasic activity as public health education, including the program of health examinations, of personal hygiene, and of organized educational efforts at the control of constitutional disease, of cancer, and of related causes of unnecessary illness and premature death. Finally, those who have considered this problem have stressed that there are requisite more effective measures for such a basic service as the control of contagious and communicable disease, including not only prophylactic measures such as vaccination against smallpox and immunization against diphtheria, but also diagnostic and therapeutic devices for the limitation and control of the venereal diseases and of tuberculosis in its many forms.

SUPPLEMENTARY PREVENTIVE MEDICAL FACILITIES

I think it may be said that very recent developments have even further emphasized the need for more complete equipment, in the tuberculosis field perhaps more than in any other segment of the public health program. It would appear, indeed, that these recent developments in the tuberculosis and related fields foreshadow an unusual expansion both in the range and volume of the forces of public health, especially in the ac-

cessory and "border-line" services. We have long admitted that public health is concerned with sanitation, education, nursing, with epidemiological activities, and, more recently, with personal hygiene and preventive medicine, in so far as this preventive medicine involves the application of prophylactic measures for the control and prevention of communicable disease. How much further should the forces of public health proceed? It must inevitably be recognized that this current and future development is closely tied up with the evolution of medical practice. Where, with the highest degree of economy to the community, should the line be drawn between the program of public health and that of the private practice of medicine? Will this interrelationship be a confused and anti-pathetic overlapping, or can it be a constructively coördinated integration of forces—a symbiotic relationship? The practice of medicine is expanding, particularly in the direction of personal hygiene. The private practice of medicine is gradually becoming, as well, the private practice of preventive medicine. What shall the limitations of this development be and where will it integrate with the expanding field of organized public health and preventive medicine?

THE RELATION OF ORGANIZED PREVENTIVE MEDICINE TO PRIVATE MEDICAL PRACTICE

Undoubtedly the doctors of medicine will engage more and more in the preventive field, on a basis of private operation. This range will gradually expand. However, the medical profession moves slowly. There are wide gaps between our knowledge of prevention and the universal application of the same. Among other things, facilities are lacking. Does not this signify that, in the meantime, the public authorities must endeavor to fill in these gaps, and must meet the situation with enhanced public facilities? The answer here seems to be affirmative. Should the public authority go still further, and actually invade the field of private therapeutic medicine? It has already manifested some tendency to do this, not only in the control of communicable disease, but also in the care of indigents and other dependent groups. Is it not likely that further extension into this medical therapeutic field would be inappropriate and undesirable? However, even though that is the case, will it not, without improper invasion, greatly aid the further and more rapid expansion of private therapeutic activities by the establishment of central and adequate facilities for the diagnosis of disease, either of a communicable or a constitutional character? Finally, would not the establishment of such diagnostic facilities react very favorably upon the expansion of the work of the average physician into the field of the private practice of preventive medicine?

REFINEMENTS OF TUBERCULOSIS CONTROL

We stated earlier that these fresh needs and tendencies were perhaps most effectively brought out by recent developments in tuberculosis control. It has long been recognized that tuberculosis control means the early detection of disease, home care and adequate public health nursing for a portion of the patients, proper institutional provision for others, the health education of the patient and his family, the after-care and economic rehabilitation of the patient, the examination of contacts, and particularly, the continued observation of children who have been exposed to the disease, and in whom one may expect to find, in a certain percentage of cases, a latent or actual childhood or adult tuberculosis. The examination, detection, supervision, and protection of the family, and particularly of the children, are essential to the prevention of subsequent breakdown, and as State Health Commissioner Parran has said, "To do this, frequent clinics equipped with x-ray facilities are necessary at convenient points in the county. Such clinics will require the services of a physician or physicians skilled in the diagnosis of early tuberculosis." How is such an arrangement going to be possible on anything like an adequate basis if each village and each small town is left to solve the problem in its own way? How can these necessary resources be made available for all of the people in the county except by a community that is collectively health conscious and able to mobilize and distribute its full resources with the highest degree of economy and effectiveness?

THE INADEQUACY OF ORDINARY CLINICAL ROUTINES

How great the need is for such diagnostic and observation facilities, for such instruments of precision in detection and supervision, has very recently been most impressively illustrated by studies concerning the incidence of tuberculosis in children in various communities. One of the more recent and illuminating studies of this kind was the one carried out upon adolescent children in the Bellevue-Yorkville Health District of New York City, where a survey was made of 1000 children between the ages of twelve and fourteen years. I cannot go into the details of this inquiry, but there is one group of facts that is pertinent to our discussion, as reported by Dr. Barnard and her associates.

In this analysis, it was pointed out that in the entire group of one thousand children, only two were found that were sick enough to require actual sanatorium care. On the other hand, fifteen children were classified as having active tuberculous disease. Naturally, these children required continuous treatment. In addition, seventy-one children were considered to have rather grave but healed lesions, and it was indicated that these children should have careful watching and at least annual x-ray and physical examina-

tions. There was an additional group of 113 children who were classified as "clinically important", needing frequent observations. These 113 children, plus the 71 previously mentioned, made a total of 184 children who were placed in a definitely tuberculous group, requiring either active treatment or frequent observation.

Now, the important point is this. These children were first clinically examined much as children are examined in the schools, although with greater thoroughness, and twenty-four out of the thousand were selected as having suspicious tuberculous signs. However, no one of these children was finally found in the group of 184 definitely tuberculous children mentioned above when they were subsequently examined with the x-ray and the tuberculin test. This is indeed a reflection of how inadequate, from the point of view of tuberculosis control, the usual physical examination procedure probably is. Further, when the children who showed a history of exposure to open pulmonary tuberculosis in the home were grouped, they constituted thirty-five in number, and out of this group, when subsequently x-rayed, only eight were determined to be tuberculous—this procedure being dependable, therefore, by itself, for the detection of only eight out of 184. Further, the group of children in the original thousand that showed 10% or more below normal weight totalled 128, though only eighteen of these were subsequently found in the group of 184 determined to be definitely tuberculous. Incidentally, a higher percentage of positive tuberculin reactions and significant x-ray findings was found in the children overweight than in those underweight.

These thousand children were originally graded according to their general appearance, and according to medical opinion as to their general health status. Those apparently in the poorest health were put in grade D and totalled 168, though only twenty-five of these were found in the final 184. On the other hand, when the thousand children were given the tuberculin test, 673 were positive, and when these children were x-rayed, it was found that in this group, there appeared 173 out of the final 184. In other words, the tuberculin test alone would have selected for scrutiny all but eleven of the children who were subsequently determined to be tuberculous through the medium of the tuberculin test and the x-ray examination combined. Need we say more to illustrate the vital importance of adequate technical facilities for the diagnosis and follow-up of the disease among children and other contacts?

Time does not permit of further illustration, but this same picture might be paralleled in the venereal disease field, in the programs for heart disease control, and for the detection of early cancer. The moral seems to be that it is fully time to discover here in New York State, what has already been in part discovered in nearly 500 counties in thirty-five states of the union—namely, that it is necessary in the average community to utilize modern organization methods to do a modern job, and to face the future necessities of disease control.

THE LIMITATIONS AND ASSETS OF PRIVATE MEDICAL PRACTICE

Of course, in this whole field, we are traditionally, and actually today, inclined to look to the medical profession for leadership, and fortunately, the medical profession has gone on record in this matter of county health machinery. One or two counties have shortsightedly opposed it, but the State Society leadership seems to be favorably inclined, and indeed, a pioneer in its advocacy. It is true that the profession in its general private practice relations has been handicapped by a lack of concrete knowledge as to the deficiencies of medical care, and self-appraisal by the medical profession of these deficiencies and needs is certainly in order and we trust impending. Perhaps to some extent the medical profession has also lacked vision and flexibility. In some respects one is reminded of the medical profession by the rather famous poem of Ogden Nash, which runs as follows:

> "The turtle lives twixt plated decks,
> Which practically conceal its sex.
> I think it clever of the turtle,
> In such a fix, to be so fertile."

Certainly, the profession is rigid, inflexible, and hard-shelled. It moves slowly in seizing its opportunities and fulfilling its obligations. Yet these very factors have protected it from invasion by popular fallacies and absurdities. The doctor frequently appears impervious to social appeals. His armor-plates present few fissures for the infiltration of new ideas, whether they be socially advantageous or whether they be elements of medical heresy. But this protects him from too easy suasion—

> The doctor's armor has no cracks—
> But thus you tell him from the quacks.

Not only has medicine resisted quackery, for the benefit of all mankind, but great also have been its positive contributions to science. Certainly, the future will, if anything, excel the past in this regard. But as the need for the wider development of medical practice becomes more obvious, and as that practice must be more effectively coördinated with public facilities and more ready to foster and utilize such public equipment, fresh vision and more intricate organization will be necessary in medicine. Whatever may be the future basic tendencies in the provision of adequate medical care in this country, and toward the more equitable and economic distribution of its costs whether by an insurance method or otherwise, it seems fairly probable that more organization of some kind for the collective administration of service in medicine

is inevitable. This higher development of medicine will include a great deal more of preventive medicine. It will foster the more extensive development of public health facilities, especially in the diagnostic and preventive medical fields. This organization will either gradually be developed by an increasingly socially conscious medical profession, alert enough to face the situation and to seize the initiative, or it will be carried out for the medical profession, perhaps beyond its control, by lay or state forces. The generally sympathetic attitude of the medical profession in New York State toward county health departments, and toward organized provision for preventive and preclinical medicine, is a factor which encourages faith in the ability of organized medicine to see this situation and to keep its balanced development within its own guidance and control.

THE COUNTY HEALTH UNIT VITAL TO PRIVATE MEDICAL PRACTICE

The medical profession, finally, has lacked facilities for the adequate practice of either therapeutic or prophylactic medicine. It is criticized today not only because its services are alleged to be costly, but because they are unevenly provided, because no devices have as yet been worked out to insure the wide application of the instruments and methods of precision in diagnosis and treatment, and because its knowledge of prevention is ineffectively and sporadically applied. These criticisms can in part be met by adequate organization within the medical profession itself, but they can never be fully met without a coöperative and systematic joint development of public health and private medicine. The average private practitioner can never hope to have the equipment with which to refute all of these charges. Organized medicine cannot alone do it completely. Only through the use by the doctor of machinery provided for all through a collective community channel can medical service meet an increasing public demand for technical efficiency and preventive economy.

A well-rounded county health organization, with equipment and personnel not only for the basic operations of sanitation, but also with diagnostic and other facilities made available for the physicians as well as for the lay public, and designed to foster the development of modern personal hygiene and preventive medicine, will mean, first, relatively adequate and economical health services for all of the people of the community, both as to basic sanitary provision and as to the supplementary superstructure for personal hygiene, preventive medicine, and health education. Secondly, it will insure a more thoroughgoing control of such a disease as tuberculosis. Thirdly, it will materially broaden the basis and illuminate the dark corners in the routine private practice of medicine—a form of medical service with tremendous values as well as disabilities for the public, and a social phenomenon that is subject today to a not altogether negligible attack and that may depend for its very existence upon such a social synthesis with public medicine. Fourthly, it will furnish the vital points of contact essential to the integration of public health and private medicine, and will facilitate the ultimate allocation either to public agencies or to private medical service, or jointly in part to each, of the developing, experimental borderline activities that are now, at this stage in the evolution of public health, subject to controversy and difference of opinion as to their most effective and responsible and logical ultimate assignment. And finally, it will encourage a greater participation of the doctor of medicine as a private practitioner in the great and growing field of the private practice of preventive medicine—another vital anchor to windward for the bark of Aesculapius.

A STUDY OF 20 CASES OF SACRO-ILIAC TUBERCULOSIS AT THE LAKEVILLE STATE SANATORIUM*

BY GEORGE L. PARKER, M.D.†

A RECENT survey of medical literature reveals extensive contributions to the subject of tuberculosis in general, but little concerning the specific subject at hand. This fact has led me to review the records at Lakeville with the viewpoint of disclosing the result of our experience with such cases.

Since the fall of 1925, when this hospital became devoted exclusively to the study of extrapulmonary tuberculosis, until February, 1931, 900 patients have been admitted, 20 of whom had tuberculous sacro-iliac disease. This paper is based upon this series of cases.

Tuberculosis of the sacro-iliac synchondrosis is a rare affection, which is thought to be essentially a disease of young adult life, slightly more common in men than in women, and extremely rare in children. Our group of cases seems to confirm this belief, since 14 cases were in males and six in females; the youngest being 10 years, the oldest 50 years of age, and the greatest age incidence falling in the second and third decades.

In this group of cases, it is interesting to note that sacro-iliac lesions developed secondary to lesions, either healed or active, elsewhere in the

*Presented before the Plymouth District Medical Society in April, 1931.

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body, several giving a history of pulmonary involvement previous to the onset of sacro-iliac symptoms. This would indicate that the infection is carried through the blood stream to the point of lowered vitality in the bone marrow or the synovial surfaces. Trauma would appear to be an exciting cause of lowered vitality in the affected bone or joint when one so often observes active secondary lesions developing in the same patient following an injury. In this group 8 patients gave a history of trauma.

ANATOMIC PATHOLOGY

We find that the sacro-iliac joint, being of the ginglymus or hinge type, normally permits a limited amount of motion without discomfort, the motion taking place around the transverse axis about opposite to the second sacral foramina, but as the articulation lies in the line of the great pelvic arch, it follows that if inflammation occurs, much pain is felt by the patient when standing or sitting and extreme discomfort when rotating the body.

During the earlier stages of tuberculous arthritis in joints with both free and contracted articular surfaces, the articular cartilage is usually destroyed most extensively along its free articular surface by granulations which extend from the surrounding synovial membrane. In the region of contact and pressure of articular surfaces, surface destruction by granulation does not take place and the cartilage is preserved longest. As the disease progresses, subchondral granulation develops, absorbing the articular cortex and attacking the cartilage from beneath. This process continues with the formation of an abscess, the so-called "cold abscess," composed of detritus and tubercle bacilli. This abscess generally dissects its way along the line of least resistance toward the body surface, with the production of the characteristic sinus.

SYMPTOMATOLOGY

The symptoms of sacro-iliac tuberculous lesions are more abstruse than one realizes. The patient usually suffers from a backache or legache, which gradually progresses, the pain being worse when lying on the affected side, and usually distributed along the course of the first and second sacral nerves, sometimes extending into the calf and foot. The disease continues insidiously, until the patient develops a "list" away from the affected side. Walking usually becomes difficult and later impossible. Upon palpation tenderness over the posterior sacro-iliac ligament at the notch is found. In short, pain, stiffness and locomotive disability are the usual early symptoms, followed by a feeling of ill health, loss of weight, night sweats, a moderate afternoon temperature, loss of appetite and abscess formation with a persistent characteristic discharging sinus.

DIAGNOSIS

The diagnosis of sacro-iliac tuberculosis is difficult, particularly so in the early stages of the disease, because the articulation is deeply situated and is an anatomic structure which allows little recognizable joint function. The early history is usually not suggestive except for the complaint of backache and legache. Examination of the patient will show disability in posture and locomotion because of pain and tenderness over that joint. The so-called straight leg raising test is of special diagnostic value in sacro-iliac disease. It is often difficult to establish tuberculosis as the positive factor, but sometimes a pointing abscess will make it possible to secure purulent material for a guinea-pig inoculation. A careful roentgenographic study will be of assistance, but inspection of stereoscopic plates is essential. Tissue structure at operation gives the final confirmatory evidence.

PROGNOSIS

Most textbooks consider the prognosis of sacro-iliac tuberculosis unfavorable. In this series of 20 cases, 8 patients have died; 2 from tuberculous meningitis, proved by laboratory findings; 4 from pulmonary tuberculosis and chronic nephritis, all of which presented normal spinal fluid findings but characteristic clinical signs of chest and renal involvement; 1 from chronic nephritis with no demonstrable lesion other than his sacro-iliac disease; and 1 from generalized tuberculosis. At present there are 7 patients suffering from active sacro-iliac disease in this hospital. The remaining 5 cases have been followed up by social service, and all found to be alive, but in poor health with the disease progressive.

TREATMENT

At Lakeville we are treating, with some modification, various types of extrapulmonary tuberculosis according to the therapy recommended by Rollier[6] of Switzerland. The patient's resistance is gradually stimulated by rest in bed, fresh air, a well-balanced diet, heliotherapy either in the form of sun or by means of a high intensity Schwartz carbon arc lamp, fixation of the joint in plaster cast, and by occupational therapy. Following this preliminary treatment, if surgery seems advisable, fusion of the sacro-iliac joint is carried out according to the Smith-Petersen or Campbell methods. In this series we have not attempted surgical fusion on any sacro-iliac tuberculous lesion. However, four patients had been operated upon previous to hospitalization at Lakeville, two according to the Smith-Petersen and two according to the Campbell[7] method. Three patients have developed multiple discharging sinuses with the disease progressive, while one patient has thus far not broken down.

The following is a résumé of the cases in this series:

CASE I. P. P., a Portuguese female, single, 25 years old, a housemaid, was admitted February, 1926. One sister had died of pulmonary tuberculosis. Admission condition good. The patient had been treated for tuberculous cervical adenitis at a County sanatorium, July, 1922. In 1924 she began to have back pain and later developed an abscess in that area, which was incised and drained. Admission x-ray demonstrated a lesion in the 2nd and 3rd lumbar vertebrae, no lung pathology, but a hazy left sacro-iliac joint. The patient left Lakeville in April, 1926, to be re-admitted in Sept., 1926. This time, her lesions were active and she had pulmonary involvement. Roentgenograms, along with clinical findings and laboratory tests, confirmed the diagnosis. Three guinea pig inoculations were positive for tuberculosis, bovine type. The patient discharged herself June, 1928, to be re-admitted for a second time Nov. 27, 1928, in poor condition, toxic, febrile, with amyloidosis. In August, 1930, she developed nephritis. Present condition poor.

CASE II. G. H. C., a white widower, 36 years old, a printer by occupation, was admitted November 30, 1926, with right hip and lower back pain of nine months' duration. No known contacts. Admission condition poor; toxic and febrile. He had multiple profusely draining sinuses over the right hip and sacro-iliac joints. Roentgenograms at this time demonstrated only a hazy sacro-iliac joint, but later, in 1927, the plates revealed not only progressive disease in this region but also lung involvement and definite destruction of two lumbar vertebrae. In June, 1928, he developed nephritis and died August, 1928, 2 years and 11 months after the onset of his symptoms. Guinea-pig inoculations were positive for tuberculosis, human type.

CASE III. G. K., a single white male, 28 years old, a machinist, was admitted Jan. 18, 1927, with a discharging right hip sinus of nine months' duration. No known contacts. The condition started with pain in the right hip, in August, 1925. In December, 1925 he developed a draining abscess and was treated with plaster of Paris casts. Admission condition fair. Examination revealed limited motion of the right hip-joint. Roentgenograms showed no osseous pathology but several old calcified peribronchial glands. In 1927 he developed renal symptoms and in 1928 showed the classical signs of amyloidosis. He continued to fail, developing tuberculous meningitis, which caused his death, October, 1929, four years and two months after the onset of his initial symptoms. X-rays of the sacro-iliac joint early in 1929 showed definite disease. Guinea-pig inoculation revealed tuberculosis, human type.

CASE IV. J. B. M., a colored female, 10 years old, was admitted Feb. 5, 1927, with a swelling in the right back of one year's duration. No known contacts. Condition on admission fair. Examination showed a small kyphosis of the lumbar spine, with motion limited in the right hip and a sinus in the right groin. Roentgenograms showed destruction of the right sacral alae and calcification of the 4th and 5th lumbar vertebrae. The patient was treated with traction and later with casts. In 1928 she developed amyloidosis. X-rays in 1928 revealed definite sacro-iliac disease of both joints. In December, 1930 she developed tuberculous meningitis, from which she succumbed 3 years and 10 months after onset of her first symptoms. Guinea-pig inoculation positive, human type.

CASE V. H. K. H., a male 32 years old, a machinist, was admitted July 26, 1927, with a complaint of pain in the left hip and back since September 13, 1926, following an attempt to lift a heavy object from the floor. He developed an abscess in November, 1926. His father had died of pulmonary tuberculosis. Roentgenograms showed destruction of the left sacro-iliac joint. Admission condition poor. The patient was placed in a cast. In November, 1927 he developed cough and hemoptysis, with positive sputum. X-rays showed advanced pulmonary tuberculosis. Several days later he developed tuberculous meningitis, from which he died one year and two months after the onset of his illness. Guinea-pig inoculations positive, human type.

CASE VI. H. S., a male, 37 years of age, a needle worker, was admitted January 13, 1928, with pain in both hip joints of 14 years' duration. No known contacts. Admission condition fair; the left hip was ankylosed, the right hip painful. X-rays showed tuberculosis of both hip joints. The patient was treated with plaster casts. His condition has fluctuated since then. Roentgenograms in February, 1931 revealed involvement of the 3rd lumbar vertebra and right sacro-iliac joint. At present he has 12 discharging sinuses, is toxic, febrile and in poor condition. Guinea-pig inoculations are positive for tuberculosis, human type.

CASE VII. D. H., a female, 21 years old, single, a bookkeeper by occupation, was admitted March 23, 1928, with pain over the right lower back and hip joint which had been present since August, 1927, following a wrenching of her back. Her mother and two sisters had died from pulmonary tuberculosis. Roentgenograms at another hospital revealed non-active bilateral pulmonary tuberculosis and destruction of the right sacro-iliac joint. At that hospital, under ethylene gas in February, 1928, a Smith-Petersen type of sacro-iliac joint fusion was carried out. Direct smears demonstrated tubercle bacilli. The wound healed by first intention and the patient was discharged. Admission condition at Lakeville was poor. She was toxic, febrile and had multiple profusely draining sinuses. Roentgenograms revealed lesions in the left wrist and in the right sacro-iliac region, and an old pulmonary process. She developed chest activity with cough, positive sputum, hemoptysis, and cavity formation and died July 2, 1929, two years after the onset of the disease. Guinea-pig inoculations positive for tuberculosis, human type.

CASE VIII. E. C., a married male, 43 years old, a woolen mill dyer, was admitted April 26, 1928, complaining of pain in the left lower back and hip since June, 1927. No known contacts; no history of injury. Admission condition poor. Physical examination showed pain and tenderness with limited motion of the left hip; there were also signs of advanced pulmonary tuberculosis with positive sputum. Roentgenograms revealed sacro-iliac disease. An abscess over the left sacro-iliac region was incised and guinea-pig inoculations of this material were positive for tuberculosis, human type. The patient discharged himself May, 1928 and a follow-up record was unobtainable by our social service department.

CASE IX. G. R. C., a white female, single, 25 years old, a nurse, was admitted October 2, 1928, with left sacro-iliac pain present since July, 1927, following an attempt to lift a patient. No known contact. Admission condition good; she had pain on pressure over the left sacro-iliac joint;

otherwise physical examination was negative. Roentgenograms revealed a shadow in the left sacro-iliac region. The patient discharged herself in November, 1928 and a follow-up record obtained by a social service worker who visited the patient on April 13, 1931, states that she is under a private physician's care and that her condition is good.

CASE X. T. W., a white male, single, 19 years old, was admitted September 14, 1928, with the complaint of right hip pain since September, 1925. Had been treated for sciatica and in August, 1927 developed an abscess in the right buttock. No known contacts. Admission condition poor; the patient was toxic and febrile, and there were multiple abscesses in pubic region. The urinary picture at this time showed chronic nephritis. He developed an acute pelvic abscess with peritonitis which was drained under spinal anesthesia. Roentgenograms upon admission revealed destruction of the right sacro-iliac joint. Surgery demonstrated tuberculous peritonitis. The patient succumbed October 5, 1929, 2 years and 2 months after the onset of his symptoms. Guinea-pig inoculations from the urine and sinuses were negative for tuberculosis. Necropsy unobtainable.

CASE XI. J. D., a white male, Portuguese laborer, 31 years, was admitted in January, 1929 with pain and inability to talk of two years' duration, following an injury to his back in August, 1927. No known contact. The patient had had a Smith-Petersen right sacro-iliac joint fusion in November, 1928 at a local hospital. Admission condition poor. He was toxic and febrile and had multiple profusely draining sinuses in the right buttock. Roentgenograms showed destruction of the right sacro-iliac joint. In July, 1929 the patient developed a cough and a positive sputum, which together with the x-ray findings confirmed the diagnosis of advanced pulmonary tuberculosis. The urinary picture at this time was that of a chronic nephritis. The patient succumbed May 4, 1930. Guinea-pig inoculation was positive for tuberculosis, human type.

CASE XII. P. S. G., a white male student, 31 years old, was admitted June 21, 1929, with a history of pain in the lower back present since 1915, following an attempt to lift a heavy object. No known contact. He was treated for rheumatism April, 1927, and developed abscesses in both buttocks. Roentgenograms revealed tuberculosis of the 3rd-5th lumbar vertebrae. During the next year he remained at home under treatment and was finally able to get about with a brace and to work on his farm. In 1928 he fell from a hayloft, following which his symptoms returned. Admission condition poor; toxic and febrile with both legs in flexion contraction and two large discharging, sloughing areas over the lumbar spine. Roentgenograms revealed old lesions in the region of the 3rd-5th lumbar vertebrae and a destructive process involving the left sacro-iliac joint. Urinary examination revealed chronic nephritis. This patient's disease is progressive. Two guinea-pig inoculations were negative for tuberculosis.

CASE XIII. J. A., a white male, 50 years old, married, a railroad switcher by occupation, was admitted June 14, 1929, with pain in the left hip of one year's duration and shortness of the left leg of 45 years' duration. One brother and 2 sisters had died of tuberculosis. His symptoms began at 11 years of age, after a fall from a train. He was treated with plaster of Paris casts for years and had multiple draining sinuses since that time. Admission condition fair but febrile; two large, profusely draining sinuses over the left sacro-iliac joint with 3 inches shortening of the left leg. Roentgenograms showed involvement of the left sacro-iliac region. The patient discharged himself. The follow-up record by the social service department states that the disease is progressing, but that the patient is in fair condition and under supervision of a family physician.

CASE XIV. F. C., a white male, 36 years old, single, was admitted July 16, 1929, with pain in the left lower back present since 1926. An uncle had died of pulmonary tuberculosis and there had been direct contact. The patient had had cervical gland pathology, biopsy of which demonstrated tuberculosis. Admission condition fair, with limitation of motion and muscle spasm, also pain in the left sacro-iliac joint. X-rays showed left sacro-iliac disease. The patient discharged himself and moved to Ohio four months after admission.

CASE XV. F. G. S., a white Polish male, 26 years old, a salesman, was admitted July 23, 1929, with pain in right lower back of one year's duration. No known contact. He had an abscess over the right sacro-iliac joint drained and in November, 1928, fusion of that joint. Admission condition poor, toxic and febrile. Chest examination revealed advanced pulmonary tuberculosis. Roentgenograms revealed right sacro-iliac involvement. The patient died in January, 1930, one year and eight months after the onset of the disease. Guinea-pig inoculations positive for tuberculosis, human type.

CASE XVI. J. F., a white male, Portuguese, married, 24 years old, a seaman in the U. S. Navy, was admitted October, 1929, with pain in the back and sinuses draining in the right buttock since May, 1929. No known contact; no history of injury. Admission condition fair; somewhat toxic and febrile. He developed renal symptoms in January, 1930. Roentgenograms revealed right sacro-iliac disease. In June, 1930 the patient discharged himself to enter the U. S. Veterans' Hospital; this institution reports that the patient's condition is fair.

CASE XVII. K. G., a white male, Polish, 35 years old, married, a shoeworker, was admitted October, 1930 with left sacro-iliac pain and a discharging sinus. Roentgenograms had revealed a tuberculous lesion in that region, and a Smith-Petersen sacro-iliac fusion had been performed at another institution on September 30, 1930. Admission condition fair, but toxic and febrile. An operating scar showed several draining sinuses. Roentgenograms revealed involvement of the left sacro-iliac joint with a sequestrum in the center. Guinea-pig inoculation was positive for tuberculosis, human type. The patient is still a resident at Lakeville but in poor condition.

CASE XVIII. A. L. Q., a white female, 25 years old, a housewife, was admitted November 4, 1930, with pain in the lower back on the left side, present since March, 1930. No known contact. No history of trauma other than that due, possibly, to pregnancy on May 26, 1930. X-rays at that time showed a separation of the left sacro-iliac joint, for which she was treated with baking and strappings. Following delivery she developed an abscess in the left lumbar sacral region, which was incised and drained. Admission condition good, but she was somewhat toxic and febrile. She had a large swelling of the left cervical glands and two sinuses over the left sacro-iliac joint. X-rays revealed destruction of the left sacro-iliac joint. The patient was treated with a double short

plaster of Paris spica. Since admission she has had two attacks of erysipelas, following which her local and general condition has improved and at present her condition is fair. Guinea-pig inoculation was positive, human type.

CASE XIX. S. M., a white, single, Russian, male, 39 years old, a laborer, was admitted January 16, 1931, with left sacro-iliac pain and tenderness of two months' duration. No known contact; no history of trauma. He had pulmonary hemorrhage in July, 1930, which was treated in another sanatorium. Admission condition good. X-rays revealed left sacro-iliac and advanced pulmonary tuberculosis. Patient in plaster cast and at present doing fairly well.

CASE XX. M. A., a white, single, female, 17 years old, was admitted March 3, 1931, with pain in the left lower back present since February, 1929, developing after a fall while skiing. No known contact. Because of indefinite abdominal symptoms, a laparotomy was done, April 25, 1928, which demonstrated tuberculous peritonitis. The patient recovered, returned to work and after a fall in 1929 developed back trouble. X-rays at that time showed a tuberculous sacro-iliac joint. This joint was fused at another hospital and tissue study proved tuberculosis. She developed a sinus following operation. Condition on admission to this hospital good; no draining sinus but abdominal pain with definite signs of peritonitis. Present condition fair. She has been treated on a Bradford frame.

CONCLUSIONS

Our group of cases is not of sufficient size to warrant any definite conclusions, but it is our opinion here in Lakeville that sacro-iliac tuberculosis is the most insidious type encountered and that the prognosis is unfavorable.

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TREATMENT OF ACUTE INTESTINAL INTOXICATION BASED UPON CLINICAL FINDINGS IN THE COLON

BY LAWRENCE P. CRAWFORD, M.D.*

FOREWORD. Treatment for acidosis was suggested in a paper entitled "Treatment of Spasmodic Croup Based upon Clinical Findings in the Colon," published in the *New England Journal of Medicine,* February 26, 1931. Since the publication of this article several inquiries have been received concerning the treatment for acidosis. After outlining the therapy that was referred to in that article, I will give specific reasons to support my views concerning the causes of acidosis.

During the period of ten years that I have used this method for acidosis I have treated over a thousand adults and children without a death. I, therefore, suggest that the medical profession try this method, believing that if it proves as effective in their hands as it has in mine, it will induce in them, as it did in me, the desire to determine for themselves the cause of an acute disease that has the same symptoms and clinical and differential findings as the condition known and treated in the past under the name of acidosis.

Until several years ago it was not generally known to the profession that certain measures of treatment were contraindicated in acute intra-abdominal inflammations. Today, even, many mothers know that when their children have pains in their abdomens, they should not give them a laxative, a cathartic or an enema. Up to the present time, however, it has not been recognized that laxatives, cathartics or large enemas administered to patients with acidosis may increase the severity of their symptoms to such an extent that they suddenly develop convulsions or coma or die from an overdose of virulent colonic toxins. In order that a mother may better safeguard the physical welfare and protect the life of her child, it would seem that the medical profession should learn that the foregoing statement is true. Furthermore, they should know the reason why a laxative, a cathartic or a *large* enema will increase acidosis, and why *small* enemas will relieve it. The following outlined treatment for acidosis has taught me these reasons:

METHOD OF TREATMENT

During the first twenty-four hours—

Six *small* enemas are given in series of twos. One half hour is allowed to elapse between each enema and four hours between each series.

During the second twenty-four hours—

Four *small* enemas are given in series of twos. One half hour is allowed to elapse between each enema and twelve hours between each series.

During the third twenty-four hours—

Two small enemas are given. Twelve hours are allowed to elapse between each enema.

All enemas are composed of weak soapy water.

Not over one half pint to a child or one pint to an adult are given at one time.

The elevation of the fountain syringe should not exceed twelve inches.

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DIET

Diet during the first twenty-four hours—

Two ounces of orange juice to a child; four ounces to an adult are given every three hours.

Water is given frequently in small quantities.

During the second and third twenty-four hours—

A non-fatty broth and a small piece of dry toast are alternated with orange juice.

Water is given frequently in larger quantities.

Patients are not allowed a normal diet until their urine is free from acetone. Contraindicated measures of treatment are laxatives, cathartics and *large* enemas. Contraindicated foods during the treatment are milk, solid foods and fatty broths. The clinical response obtained from this method is prompt. The fever disappears in a few hours. The urine is free from acetone usually in seventy-two hours. The prognosis is excellent. Convulsions or coma do not occur. Death is unknown. It was found that those who had *not* been given contraindicated treatment were fully recovered and on a normal diet within three days, while those who had received contraindicated treatment could not be given a normal diet until six or seven days.

From these clinical data I am led to conclude that convulsions and coma are not symptoms of acidosis. It seems to me that these symptoms are due to the contraindicated measures of treatment of an acute intestinal intoxication.

For several years (usually on the average of once a year) I have viewed the body of a well-nourished child aged one or two years, a few minutes after its death. The history of these children's illnesses was the clinical history of acidosis. The wet diapers that were removed from their bodies always showed a pronounced acetonic reaction. All died suddenly after a convulsion. All had been given a laxative, a cathartic, or a *large* enema six or eight hours before their convulsion. Their temperatures per axilla registered 102° to 103°.

Fifty other children with a clinical history of acidosis, ages one to three, gave the same preconvulsion history of their illness and treatment, but they recovered. The wet diapers that were removed from their bodies also showed a pronounced acetone reaction. Their temperatures per axilla registered 103° to 104°. Six or seven days elapsed before they could be given a normal diet.

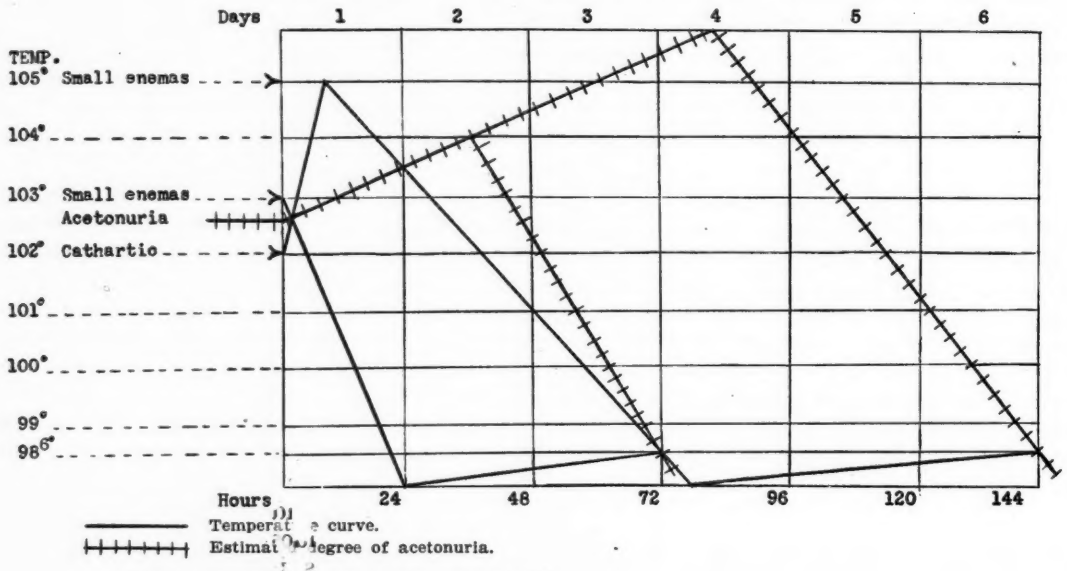
On the one hand, my clinical experience with acidosis has taught me that contraindicated treatment often produces convulsions and occasionally it produces a sudden death; especially has this been true in children who were less than three years of age. On the other hand, it has taught me that the treatment outlined resulted in no untoward symptom. The patient always recovered. The convalescence was reduced fifty per cent.

It seems to me that the clinical response to the treatment that I would urge the medical profession to try will convince them that no such response could be obtained if this particular treatment did not relieve the cause that produced the symptoms.

It seems probable to me that medical authority will agree with me when I say that it is impossible to determine the true cause of a condition or a disease if major clinical findings of

CHART SHOWING COURSE OF PROGRESS WITH AND WITHOUT CATHARSIS

The indicated diet is orange juice, dry toast and broth.
The contraindicated diet is solid food, milk and fatty-broth.



Rise in temperature after a cathartic is given.
Drop in temperature after small enemas are given.
Acetonuria reaches its height the fourth and disappears the sixth day with a cathartic.
Acetonuria reaches its height the second and disappears the third day with small enemas.

that condition or disease are deleted. The following specific reasons lead me to believe that certain major clinical findings in acidosis have never been considered as being related (directly or indirectly) to its cause:

1. Uniform findings by examination of the wet diapers that were removed from the bodies of certain young children shortly after their death inform me that contraindicated treatment is the cause of many thousand sudden deaths that occur each year in well-nourished children.

2. Clinical findings that were elicited by examinations of the abdomens of over a thousand children and adults during a sudden attack of acidosis revealed the presence of impacted feces and pocketed gas in their colons.

3. The prompt therapeutic responses that were obtained in all these cases by the removal of impacted feces and pocket gas verified these diagnostic findings.

4. All adult colons that were x-rayed several days after an attack of acidosis showed an incompetent ileocecal valve and atonic or hypertonic areas in their colons. These same adults at the time their colons were x-rayed showed a slight constant acetonuria. The acetone disappeared from their urine and an x-ray of the cecum showed a competent ileocecal valve when the colonic stasis (which was due to a non-uniform muscle tone) was relieved. From these uniform x-ray findings and therapeutic responses I am convinced that a persistent trace of acetone does not appear in the urine of any individual whose colon shows a competent ileocecal valve by x-ray.

5. Lastly, such local toxic manifestations as spasmodic croup, an eczema that is not due to irritants (locally applied), a nosebleed that is not caused by local violence or a high blood pressure, uterine bleeding that is not the result of fibroids; an arthritis, herpes zoster, or bronchial asthma that is not due to a toxemia from the ordinary focal infections, seem to me to be caused by the absorption of colonic toxins from the small intestine, because treatment that is based upon clinical and x-ray findings in the colon promptly and effectively relieves these toxic manifestations, while treatment that is not based upon a temporary or constant colonic stasis is unsuccessful.

I am asked the question "What is acidosis?" In my opinion, acidosis is a general toxic manifestation of the absorption of virulent colonic toxins from the small intestine.

The symptoms that have been ascribed to it are the symptoms of acute intestinal intoxication. These are a sudden fever, rapid pulse, sometimes air hunger, a proneness to be suddenly tired and drowsy, a dry nose and throat, and an acetone breath. Acute intestinal intoxication has no fatal complications when its cause and the indicated and contraindicated measures for its treatment are known.

Its differential finding is a pronounced acetonuria. Its clinical findings are dullness and tympany on percussion over the colon. Its contributory causes are (a) impacted feces and pocketed gas in the colon, (b) an incompetent ileocecal valve.

It seems reasonable to me that medical authorities will agree with me when I say that toxins that are absorbed from any portion of the body weaken all muscles and that the degree of weakness depends upon the degree of toxicity, the rate of absorption, the amount, and whether the toxins are absorbed temporarily or constantly.

I am led to believe that acetone in the urine is also the differential finding of chronic intestinal toxemia, i.e., intestinal auto-intoxication, because acetone is present in all cases showing an incompetent ileocecal valve by x-ray and it disappears when the cause of the incompetency, i.e., stasis in the colon, is removed.

It seems reasonable to believe that the small intestine becomes contaminated if the ileocecal valve is incompetent and if the valve be made competent by removing colonic stasis and strengthening the musculature by graduated exercise, the contamination will be eliminated. I have tried this method of treatment for intestinal auto-intoxication for the past seven years and from the uniform responses that were obtained I am led to conclude that a slight persistent acetonuria means an incompetent ileocecal valve.

I am also asked the question, "Is the acidosis that is found in children and adults who are not diabetics due to the same cause as the acidosis that is found in diabetics?" Yes, I have found that acidosis is prone to complicate all disease, serious injuries, anesthesia, or a diet that is constantly low in carbohydrates. It seems reasonable to me that it would do this because a normal muscular valve that is composed of normal muscle fibres can be stretched to such an extent that it becomes incompetent. Prolonged stretching of muscles produces loss of function. If the function of the ileocecal valve were lost temporarily, it would mean that colonic toxins would be absorbed from the small intestine until the causes that produced its loss of function were removed.

If an ulcer perforates the wall of the intestine, the physician advises that the damage be repaired; if the ileocecal valve becomes incompetent because of a fecal stasis, he removes the fecal stasis in such a manner that additional toxins may not be forced or washed into the small intestine.

Clinical experience obtained by treating acidosis and intestinal auto-intoxication has taught

me that pocketed gas in the colon is sufficient cause to produce an incompetent ileocecal valve.

What proof is there that will verify the diagnosis of a disease better than a treatment that will cause all the symptoms of the disease to disappear, reduce convalescence and, at the same time, prevent the serious complications and an occasional death that resulted because contraindicated measures of treatment for the disease were employed?

Can a physician do better than base the treatment of a pronounced acetonuria in any patient upon its contributory causes, namely,—impacted feces, pocketed gas in the colon and an incompetent ileocecal valve?

Is it unreasonable to think that many knotty therapeutic problems that confront the medical profession will be solved when physicians know the complications that are prone to occur when the ileocecal valve ceases to be an effective barrier between the sewer and the absorbing systems of the body?

Because the outlined method has been more successful in my practice than any other, and believing that it might give physicians a clue to the diagnosis and treatment of two diseases of considerable importance, namely, acute and chronic intestinal intoxication, I should like them to try it. Furthermore, finding no record in medical literature that the absorption of virulent colonic toxins from the small intestine can produce convulsions or cause the sudden death of a young child; that a pronounced acetonuria differentiates this disease from all others; that there are contraindications to the treatment of it; that intestinal intoxication can be accurately diagnosed by testing the urine and further intestinal absorption can be prevented by establishing a uniform muscle tone in the colon musculature, is it unreasonable to suggest that mothers can prevent the deaths of many thousand young children as soon as they are informed that certain measures of treatment for a sudden fever are contraindicated? Or is it inappropriate for me to ask to whom but the medical profession are mothers to look for this information?

The object of this paper is an attempt to prevent the loss of those young children who die in the short interval of time that elapses between the time a physician is summoned and the time of his arrival at the bedside.

If the physician realized that absorption of colonic toxins takes place in the small intestine rather than in the colon, although all the objective findings are in the colon, he would avoid any form of treatment that might force more toxins into the ileum. If he realized that stretching the colon by pocketed gas results in permanent weakening of the musculature, he would know that the problem resolves itself into strengthening the musculature. I contend that laxatives, cathartics, enemas, irrigations and lubricants, while they may produce temporary results in patients who constantly absorb colonic toxins from the small intestine, do not affect the underlying cause and may aggravate it.

The only rational treatment, then, is one directed toward strengthening the distended colon. It requires no exaggerated imagination to determine what might happen to a dilated appendix that is attached to a dilated cecum if its musculature were too weak to expel material that dropped into it; or what might happen to an organ in the abdominal or pelvic cavities if the musculature that supported it lost its function of contraction. If it takes three days of careful supervision to induce a normal muscular valve to resume its former strength and vigor after a few hours of direct absorption of virulent colonic toxins from the small intestine, is it not a probable supposition that these toxins have serious effects upon all muscles of the body? Furthermore, if the absorption of virulent colonic toxin can cause the death of a child in less than six hours, may not the constant absorption of less virulent colonic toxins in adults reduce their pulse pressures, cause a ptosis of organs, headache, susceptibility to fatigue, interfere with vision, or produce such local toxic manifestations as spasmodic croup, eczema, bronchial asthma, herpes zoster, arthritis, uterine bleeding or flat feet?

The colons of four hundred adults who showed chronic intestinal intoxication, by presenting one or more of the above symptoms and the differential finding, a slight persistent acetonuria, were x-rayed. Every colon showed a muscle stasis and an incompetent ileocecal valve.

These are my findings, interpretations and conclusions. Upon them I base the diagnosis, indications and contraindications of the treatment of acute intestinal intoxication. I would treat acute intestinal intoxication rather than acidosis because I believe it is the cause of the symptoms that have been ascribed to acidosis.

CONCLUSIONS

Convulsions or sudden deaths of young children with acidosis have occurred; the contributory cause of acidosis is recognized as being due to a fecal stasis in the colon; treatment is directed toward removing this cause.

General and local toxic manifestations of the absorption of colonic toxins from the small intestine will be promptly recognized when the medical profession learns that acetonuria is the finding that differentiates an incompetent from a competent ileocecal valve.

I do not urge the profession in general, and general practitioners in particular, to try this treatment because it is my opinion that acidosis is due to the absorption of virulent colon toxins from the small intestine; neither do I urge them

to try it because other toxic manifestations of this absorption subside promptly when treatment is directed to the colon. I urge them to try it because my twelve years of experience with it lead me to believe that they will be delighted to witness such prompt and startling recovery from a disease or a condition, and furthermore, after they have seen these results a few times, I believe that they will agree that impacted feces and pocketed gas must be removed carefully from the distal towards the proximal end of the colon by small enemas, never from the proximal towards the distal end of the colon by cathartics or laxatives.

The outlined therapy and diet give prompt relief to those who have undergone contraindicated treatment.

A treatment for a disease or condition that has prevented complications and death and has reduced the convalescence of many patients seems to me to be a therapy that the medical profession should know about. Furthermore, it seems to me that when such a prompt and efficacious remedy is discovered, it is not the time to uphold the long-cherished theory of acidosis.

Let the etiology of acidosis wait, but while we wait, let us apply the remedy that prevents convulsions and death in young, well-nourished children.

THERAPEUTICS AND TOXICOLOGY OF THE SULPHOCYANATES

BY JAMES CLARKE HEALY, M.D.*

SINCE 1924 more than a thousand cases of hypertension treated successfully with potassium or sodium sulphocyanate have been reported in the literature. Sollman[1] describes it as a relatively non-toxic drug which resembles the iodides in its action but is preferable to the latter in that it has no action on the thyroid gland. In 1903 Pauli[2] reported excellent results in the treatment of hypertension by sulphocyanates, and two years later Lodholz[3] discussed its toxic effects, ascribing them to the potassium ion or impurities. For several years there is no mention of the drug being used, probably because of conflicting clinical results, due, no doubt, to inadequate and improper dosage.

In 1924, Westphal[4] resurrected this form of therapy. Working on the hypothesis that essential hypertension is due to an increased and sustained arterial tonus, he found sulphocyanates the most efficient and lasting sedatives. The following year Nichols[5] reported his experiences in its use and drew attention to manifestations of intoxication with the drug. Results of toxic doses as recorded in his paper may be tabulated as follows: They

1. Abolish muscular activity
2. Stop the heart
3. Elevate the blood pressure, if not immediately fatal.
4. Cause diarrhea
5. Produce diuresis in rabbits
6. Set up intense irritation of the motor cells of the spinal cord.

He advised therapeutic doses up to 15 grains a day and fixed the minimum lethal dose for a man at 15 grams.

Gager[6], at the Cornell clinic, in 1928 reported 35 cases of essential hypertension with a fall of 20-60 mm. of Hg. in systolic and a slight lowering of diastolic pressure, during sulphocyanate therapy. Three of the group showed no improvement under treatment but all were relieved of subjective symptoms to greater or less extent. The unit dose was 1½ grains, given 3 times a day the first week, twice a day the second and once a day the final week of treatment. In two patients a rash similar to that of iodism was reported, and one complained of weakness. Further than that there were no signs of toxic reaction.

Smith and Rudolph[7] in September, 1928 reported a series of cases in which both normal humans and hypertensives were treated with sodium sulphocyanate. Doses of 5 grains, 3 times a day, were given and a lowering of blood pressure in both groups occurred. They found that those patients with such sequelae as arteriosclerosis and renal insufficiency gave less satisfactory results but did respond in slight measure. No untoward results of treatment were noted.

Logefeil[8] in 1929 reported the successful use of 5 grains, three times a day, for various lengths of time up to four weeks. The administration was suspended when symptoms of weakness or a dermatitis appeared. No serious results were encountered, but all cases showing severe myocardial or nephritic involvement were excluded from the series.

An exfoliative dermatitis similar to that of arsenic poisoning as a complication of sulphocyanate therapy has been reported by Weis and Ruedemann[9], Ayman[10] and Logefeil[11].

Palmer and Sprague, 1929[12], in their series of cases, gave 5 grains of the drug, three times a day, for the first week, twice a day the second and once a day the third week. At the first sign of nausea and vomiting, administration of the drug was discontinued. They feel that symptoms of intoxication are due to the fact that as the blood pressure falls, circulation becomes deficient in certain organs. Two cases of angina

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pectoris were noted while the drug was being administered, both of which were relieved after withdrawal.

Borg[13], in 1930, reported four cases of toxic psychosis occurring during sulphocyanate therapy, the dosage varying in his series from 2 to 10 grs., three times a day.

Of interest in the evaluation of sulphocyanate and the other sedative drugs in the treatment of hypertension is the report of Fineberg[14], who, summarizing the results of his experiences in 1930, concludes that sulphocyanate in 1½ grain dosage failed to produce as good results as small doses of other sedatives, such as bromides or phenobarbital. Furthermore, only when doses of 5 grs. three times a day were administered did he get better clinical results than with phenobarbital. Subjective symptoms, however, were more improved under sedative treatment, while fall in blood pressure was greater with larger doses of sulphocyanate.

The following case reports are presented of patients with hypertension treated with potassium sulphocyanate along the lines described by Palmer and Sprague. They all had other pathology which, however, in view of the findings in the literature, was not considered to be a contraindication for the use of the drug.

CASE I. P. C., a white male patient, age 56, showed some evidence of arteriosclerosis in the fundi but none in the peripheral arteries. The blood pressure was 256/128 over a period of 8 months, nitrites and sedatives causing little change. Urine and renal function tests failed to show any definite kidney pathology. The blood Wassermann was negative.

Three days after starting treatment with potassium sulphocyanate, the systolic pressure dropped 30 mm. The patient became disoriented, had hallucinations of sight and hearing and was at times maniacal. The drug was omitted, morphine and scopolamine being required to control the excitement. Mental symptoms gradually subsided and in three days the patient was normal, the blood pressure having regained its original peak.

CASE II. I. D., a colored woman, age 60, was admitted to the Long Island Hospital with diagnoses of diabetes mellitus and arteriosclerosis of moderate degree. At that time the blood pressure was 148 systolic, 88 diastolic. The diabetes was easily controlled by diet and insulin and subjective symptoms were relieved entirely, the patient being up and about the ward. Over a period of 1½ years the blood pressure gradually rose until on March 1, 1931, it was 230/110. She complained of vertigo, dizziness and pounding in the head. Urine studies were negative, and the blood chemistry was normal. The heart was found by percussion to be enlarged to the left. The blood Wassermann was negative.

With rest and sodium nitrite, grains 1, by mouth, three times a day, the pressure dropped to 162/90, but returned to its peak again by April 1, at which time potassium sulphocyanate was ordered in solution, 5 grains to be given three times a day for one week, twice a day the second, and once a day the third. The pressure declined gradually, the patient becoming markedly weak and drowsy. April 18, after she had ingested about 180 grs. of the drug, she became comatose, the systolic pressure being 102. Physical examination at this time revealed no changes from that at the time of admission except areas of pigmentation in the mouth and on the flexor surfaces of elbows. Since that day she has shown marked improvement subjectively after injections of 15 minims of 1-1000 solution of epinephrine hydrochloride, as required for comfort, the blood pressure varying from 80/40 before medication to 105/40 to 140/70 after medication. The pigmentation, however, increased for about three weeks, although it is now stationary. On May 10, when the blood pressure was taken before the usual morning treatment with epinephrine, it was found to be 192/116.

CASE III. E. D., a female aged 67, was admitted with the diagnoses of hypertension, arteriosclerosis and deafness. She was fairly comfortable and active on the ward. Physical examination on April 4, 1931 revealed a hypertension (blood pressure 205/100), enlarged heart, moderate arteriosclerosis, deafness and, so far as tests are diagnostic, normal kidneys. A day later the routine treatment with potassium sulphocyanate, as described above, was begun. In ten days the onset of marked weakness was noticed and the blood pressure had dropped to 145/90. The drug was omitted, but the symptoms persisted and progressed, the pressure being 110/70 on May 1. On May 4, the patient was semi-comatose and signs of vasomotor failure appeared. Caffeine was administered subcutaneously with good but evanescent results. Epinephrine solution hypodermically caused a rise in pressure to 135/80, but this effect lasted only a few minutes. The pulse became rapid and weak, the blood pressure became impossible to check and the patient died in coma. Permission for a postmortem examination was not obtained.

CASE IV. H. D., a female, aged 63, was admitted with a diagnosis of hypertension. On January 15, 1931, the blood pressure was 220/120. Routine therapy with potassium sulphocyanate, begun Jan. 21, was omitted Feb. 1. Seven days after beginning treatment the pressure was 190/100 and vague complaints of weakness were noted. On Feb. 1, it was felt that attempts to relieve the hypertension were making the patient uncomfortable, the pressure having fallen to 170/88. Despite the removal of the drug, the pressure dropped to 150/70 in the following fortnight and weakness and delirium increased. Notwithstanding attempts at stimulation, the condition progressed, signs of vasomotor failure appeared, and the patient died in coma. Autopsy was not performed.

To explain the probable cause of death in the last two cases the following experiments were done. Four healthy male rabbits of approximately the same weight were fed on a fluid-free diet of green vegetables.

Rabbit No. 1, the control, was given 25 c.c. 10% glucose, transduodenally three times a day and kept in a cage at ordinary room temperature, as were Nos. 2 and 3. The urine was tested daily for sulphocyanate, as were distilled water washings of the mouth. These tests were negative for the four days.

Rabbit No. 2 was given ¼ gr. potassium sulphocyanate in each feeding of glucose solution. The urine and mouth washings showed a trace of the sulphocyanate after the first day. Marked diuresis was noted in the animal.

Rabbit No. 3 was fed 1/4 grain potassium iodide in the glucose solution. No sulphocyanate was detected in the urine or mouth washings.

Rabbit No. 4 was kept in a cage at a temperature of 15° C. to exclude the possibility of fluid

elimination through the respiratory tract, given small frequent doses of atropine to limit salivary action, and 50 c.c. hypertonic salt solution transduodenally two hours after each glucose and sulphocyanate to lessen the urinary output. Actually only a few c.c. of urine were eliminated, these giving a positive reaction for sulphocyanate. Mouth washings were negative for sulphocyanate. The rabbit became ataxic and asthenic on the second day, comatose on the third, and died about 92 hours after the beginning of the experiment. The cut surface of the adrenal body in this rabbit gave a strongly positive reaction for sulphocyanate in the cortical portion, while the same test was negative in the case of rabbit No. 2. At autopsy the adrenal bodies seemed larger and softer than normal, but microscopic specimens revealed no definite histologic changes.

The experiments suggest the probable accumulation of the drug in the adrenals when free elimination is obstructed, even by mechanical means.

SUMMARY

A brief review of the literature on the therapeutics and toxicology of potassium sodium sulphocyanate, three cases illustrating a form of intoxication hitherto unreported, and experimental evidence on the toxicology of the drug are presented. The clinical and experimental data suggest that the drug is cumulative when the avenues of its normal excretion are obstructed, even though by our best laboratory methods we cannot demonstrate such obstruction, and that the site of action is in the adrenal gland. It appears that hypertension as a disease is a generalized condition of the organism which requires increased arterial tonus to maintain function and that any drug which has the power to reduce this tension to the average normal leads to disaster.

CONCLUSIONS

1. The sulphocyanates in doses large enough to reduce blood pressure appreciably are toxic and may destroy life.
2. The syndrome of hypoadrenia has been produced clinically and experimentally with what have been described as therapeutic doses of sulphocyanate.
3. The drug is cumulative under certain conditions.
4. Other symptoms of intoxication, such as gastro-intestinal weakness, rash, dermatitis, psychosis, may in fact be manifestations of hypo-adrenia of greater or less degree.
5. The incidence of intoxication increases with the age of the patient.

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CONGENITAL HEART DISEASE: REPORT OF A CASE WITH MALFORMATION OF AURICLE AND HEMORRHAGIC EFFUSION INTO THE PERICARDIUM*

BY HOWARD STANTON REID, M.D.†

MALFORMATIONS of the right auricle occur most frequently in women, most of whom reach middle life[1] and the abnormality is usually not discovered until necropsy. In the following case the attempt to normalize a "myxedema heart" as described by Fahr[2] was unsuccessful. The true state of affairs was revealed only at autopsy.

CASE REPORT

The patient was a woman of fifty years. Her chief complaints were dyspnea, left-sided abdominal pain, numbness of the left leg and constipation.

Past History: She had the usual exanthemata of childhood. Clinically she was luetic with a negative blood Wassermann. She had eight conceptions with two miscarriages and four deaths shortly after delivery. Fifteen years ago she had a right salpingo-oöphorectomy and left salpingectomy, from which she had a stormy convalescence; she bled freely from her wound, which broke down and had to be resutured; the lower half of each breast sloughed following hypodermoclysis. With specific treatment there was rapid improvement in her general condition, but a change in her facial contour was noted with puffiness of the face. Constipation increased in degree.

Present Illness: For the past year she had become progressively short of breath and recently had developed a sense of crushing or tightness of the left chest and could not lie on her right side due to a smothering sensation and aggravation of a cough. She was easily fatigued and slept a great deal; she had developed puffiness of the eyelids and a purulent conjunctivitis. She first entered the Massachusetts Memorial Hospitals July 11, 1930, and was diagnosed as having myxedema. The following morning basal metabolic rates were reported as thirty-eight per cent. below the Harris Benedict

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prediction and minus forty-three per cent. by the Aub Du Bois. Under thyroid medication, one month later she showed an average of two basal rates of minus five per cent. Her condition had so improved that she was discharged and referred to the Out Patient Endocrine Clinic. Medication was not followed and she returned to the hospital on October fifth, complaining of epigastric distress of such degree that she was entered on a surgical service and a gastro-intestinal examination made. During fluoroscopy an enormously enlarged cardiac shadow was noted and a cardiac plate taken. The x-ray report of October eighth was "Stomach and duodenum negative. Chest: Increased densities at the apices, which appear to be the result of old tuberculosis. Heart shadow greatly enlarged, its contour suggesting pericardial effusion." The following day an electrocardiogram was made and reported upon as follows: "The small P and T wave (slightly inverted in this case) and also the excursion of the Q.R.S. wave are consistent with the heart in myxedema. These details should change well toward the normal after administration of thyroid extract has normalized the metabolic rate." She was then referred to the Evans Memorial for complete diagnostic study.

The following is a summary of the physical examination: The patient showed the characteristic myxedema facies with sallow, dry skin and wiry black hair. The heart impulse could not be detected. The right border of cardiac dullness was in the fourth interspace five centimeters to the right of the midsternal line. The left border of dullness was in the fourth interspace in the midaxillary line, when the patient was recumbent. The rhythm was regular. Heart sounds were weak and distant. No murmurs were detected. Left radial pulse was barely palpable, the right soft but detectable; the rate was seventy. The systolic blood pressure was eighty millimeters, diastolic sixty. The lower quadrants of both breasts were atrophic and scarred. Transitory coarse and fine râles were present posteriorly. The abdomen was pendulous. There was left-sided tenderness over a mass, consistent with a distended colon. The liver was not palpable. Knee jerks and Achilles reflex were absent. There was anesthesia of the left foot. No edema was present.

The following is a summary of the laboratory findings: The blood morphology showed 8,350 white cells, 4,050,000 red cells, hemoglobin 70 per cent. and a differential count of neutrophils 58%, lymphocytes large 8%, small 24%; endothelials 10%. The blood chemistry was within normal limits. There were 2.7 milligrams of phosphorus, 10.4 milligrams of calcium and 210 milligrams of cholesterol per one hundred cubic centimeters of blood. Wassermann, Kahn and Hinton tests were negative. A lumbar puncture was performed. The cell count of the spinal fluid was 13, sugar increased, no globulin present and a colloidal gold curve of 5554310000. The electrocardiogram was essentially the same as that taken on October ninth. There was the characteristic dipper curve at 4096 frequency. The ophthalmologist reported small pupils, senile lens opacities. Examination under cocaine revealed no pathology. The patient's basal metabolic rate on admission to the Evans Memorial was minus nineteen per cent. A twenty-four hour urine volume was 2210 cubic centimeters, acid reaction, specific gravity 1.010; the other findings, including sediment, were essentially normal. The patient's morning temperature was 97 and evening 98 degrees. Her pulse varied from 60 to 75. The x-ray department reported, "Systolic contractions of insufficient amplitude to be seen fluoroscopically. Myocarditis. Pericardial effusion. There are probably associated a disturbance of rhythmic contraction and relative valvular insufficiency."

After completion of the week's diagnostic study, six grains of thyroid were given until November eighth. Two days later x-ray findings showed no reduction in the cardiac shadow. The medication was increased progressively to fifteen grains. Following this the patient's pulse rose to one hundred, her flesh became firmer and her skin softer and she gained three pounds. On the thirteenth, on the advice of Dr. Hoskins, the medication was changed to thyroxin (.0008 grams daily). Two days later her pulse varied from ninety to one hundred and twenty; the heart sounds were slightly louder. There was no sweating. General body and tissue pains were marked. The patient was very irritable. After five days of thyroxin medication the basal metabolic rate was plus thirteen per cent. Medication was discontinued. There was a drop in pulse rate, but dyspnea increased. Convinced that thyroid had only changed the heart tone and rate and not influenced the size of the cardiac shadow, a pericardiocentesis was done on the ward by Dr. W. D. Reid on the twenty-first. The approach was made below the tip of the xiphoid and 500 cubic centimeters of watery red fluid, containing flocculent material that settled out but did not clot, were aspirated. Cultures of the material showed no growth. Smears showed red cell detritus and crenated reds with a few old shrunken lymphocytes. After tapping, a definite friction rub was heard across the lower precordia to the apex.

The following morning the patient was examined under the fluoroscope. "Contractions of the auricles and of the ventricles were not discernible. Faint contractions were visible above the left auricle, in the region of the pulmonary arc, rate 96 per minute, rhythm regular. This was not observed at the last examination and may be regarded as evidence of a decrease in the amount of fluid present in the pericardium. The latter had refilled after pericardiocentesis. I should estimate one litre of fluid may be withdrawn."

A second aspiration was done a week later. The approach was at Sears point and 800 cubic centimeters of the "blackberry juice" fluid aspirated. The heart sounds became clearer, but the friction rub increased.

Clinically the patient was improved and she was allowed out of bed, although she tired easily on exertion. She was discharged on the seventh of December in order to be at home over the holidays, but she was requested to return if she felt she was "filling up" again.

She returned on January seventh with a hacking cough, causing pain in the left scapular region. The friction rub had entirely disappeared. After a few hours in bed there was marked edema of dependent parts. The left chest was flat to percussion posteriorly and on the ninth 850 cubic centimeters of straw-colored pleuritic fluid were aspirated. The chest tap was repeated two days later, yielding 1100 cubic centimeters of pleuritic fluid. Her general condition was such that a pericardiocentesis was not attempted. She was treated symptomatically and expired on the morning of the thirteenth of January.

AUTOPSY*

Pathologic Diagnoses:

Pericarditis with effusion.
Congenital malformation and atrophy of the heart.
Arteriosclerosis with ulceration and thrombosis.
Hydrothorax.
Hypostatic pneumonia.
Healed pleuritis.

*Autopsy performed by C. F. Branch, M.D.

Hypoplasia of thyroid with myxedema.
Chronic splenitis.
Marked chronic passive congestion of the liver and gastro-intestinal tract.
Ascites.
Chronic congestion of the kidneys.
Acute cystitis.

The autopsy report records:

"*Pleural Cavities:* Right presents a few old fibrous adhesions between the visceral and parietal pleura, at the apex and posteriorly at the base. There are present approximately 500 cubic centimeters of thin, clear, dark amber-colored fluid in which are freely floating a few fibrinous strands. Left contains approximately one litre of similar fluid. No adhesions.

Pericardial Cavity: Is enormously distended with approximately 1700 cubic centimeters of thin, watery fluid, dark red in color, having the appearance of a blood-tinged, serous exudate. Free floating in this are several small bits of soft, yellow, fibrinous material.

Heart: Weighs 200 grams. Appears as a small acorn-like nub set far back in the pericardial cavity (Fig. 1). The epicardium is markedly injected and

FIG. 1. Phantom photograph to show relation of cardiac shadow to pericardial shadow. The heart is somewhat enlarged due to opened cavae and right auricle.
A—Inferior vena cava.
B—Superior vena cava.
C—Left ventricle apex.
D—Pericardial shadow.

covered with fine, irregular lines of partially organized, fibrinous material. Heart has most peculiar position and arrangement. The right margin of the superior vena cava fuses indistinguishably with the same side of the inferior vena cava; the former is approximately normal in size, while the latter is enormously distended and practically forms the entire right auricle (Fig. 2). Where the auricular tissue leaves off and the vessel begins, is within 1.5 centimeters of the liver; thus as one looks into the cavity it appears as though these two vessels and the right auricle formed a large T-shaped structure, with the top of the cross bar forming the right lateral margin of the two vessels, the mesial side of the vessels fusing to form the right auricle or the upright piece of the T. The foramen ovale is closed. The myocardium is essentially negative. Coronaries show a moderate degree of atheromatous degeneration throughout their entire course. The right auricle just above the base of the tricuspid valve and behind the base of the pulmonic valve presents a small, firm nodule that protrudes for approximately 5 millimeters from the pericardium and has a diameter of approximately one centimeter. The epicardium covering this is darker red-gray than the surrounding epicardium and presents three small, bright yellow, fibrinous appearing dots on its upper surface. On sectioning this nodule it is found to be a muscular malformation, the right auricular musculature at this point suddenly turning upon itself and sweeping upwards so that the ends of the muscle bundles end abruptly in and form the nodule above described. In this region the muscle bundles are well separated and so arranged that the blood within the cavity came in contact with the pericardium in places. Upon careful gross examination, no actual point of rupture or seepage can be discovered.

The pulmonary artery and the aorta have been

FIG. 2. Heart very slightly rotated to show lack of musculi pectinati, in right auricle.
A—Inferior vena cava.
B—Superior vena cava.
C—Left ventricle apex.

fused by partially organized, fibrinous adhesions in such a manner that the small cavernous space exists between their two outer surfaces. In this there is a freely floating, irregular, soft, purple object, covered with smooth and glistening membrane, on which are small fat tabs. On section, this contains partially inspissated old clotted blood. The aortic arch and base show small scattered atheromatous plaques.

Valve Measurements

Tricuspid valve	9.0 cm.
Pulmonic valve	6.5 cm.
Mitral valve	8.0 cm.
Aortic valve	6.0 cm.
Left ventricular wall	1.5 cm.
Right ventricular wall	0.5 cm.

Lungs: Right measures 24 x 18 x 6 centimeters; weighs approximately 800 grams. Pleura is roughened by a few torn, old fibrous adhesions. The surface is otherwise smooth and glistening, dark red-gray in color, except posteriorly, where it is deep crimson. Lung is soft, spongy and crepitant, except posteriorly in the deep crimson areas, where it is non-crepitant and boggy. Cut surface shows that the alveoli are not discernible and exude much frothy, dark red fluid. Bronchi are markedly reddened; otherwise not remarkable. Left measures 23 x 13 x 3 centimeters; weighs approximately 450 grams. Is relatively smaller and compressed; similar to its fellow in every respect except that the anterior por-

tion of the lung shows a moderate degree of atelectasis.

Aorta: Shows an increasing degree of arteriosclerosis from above downwards, there being very little in the region of the arch, while from below the diaphragm to just above the bifurcation large atheromatous plaques are ulcerated and the vessel is partially occluded by fresh, hemorrhagic thrombi. The right common iliac artery has a lumen at its orifice less than two millimeters in diameter. The left subclavian shows a similar atheromatous thickening with narrowing of the lumen.

Thyroid: Both lobes are small, atrophic and are flat-white in color. No isthmus can be found. The glandular tissue is tough, fibrous in nature; no alveoli or colloid material can be found.

Microscopic examination of the heart: Section through the heart wall shows it to be thinned and the musculature somewhat atrophic in character; there is a moderate increase of lipochrome pigment in the muscle fibres. The epicardium is dense, fibrous and heavily infiltrated with large numbers of lymphocytes. Not infrequent collections of endothelial cells are present, heavily laden with coarsely granular, golden brown pigment. Section through a portion of the heart, at the point of gross deficiency, shows the muscle fibers to be in a condition similar to that described above, except that here they are somewhat separated by a slight general increase of connective tissue. The sulci between the fine papillary muscles extend to, and at one point appear to be directly continuous with, the overlying epicardium. This latter structure shows a dense fibrous thickening at these points, heavily infiltrated with lymphocytes, occasional plasma cells and many endothelials. There is also much fibrin present. Many of the endothelials are heavily laden with coarsely granular golden brown pigment.

DISCUSSION

This case demonstrates the need of considering other pathology when the heart in myxedema fails to respond to specific treatment. The usual textbook causes of hemorrhagic pericardial fluid, such as rupture of an aneurysm, tuberculosis or malignancy[3] were not found. The most striking fact was the marked abnormality in shape and size of a congenital heart that had given comparatively little trouble until well toward the fiftieth year. The relative unimportance of auricular function is entirely consistent with findings in many cases of auricular fibrillation: if the ventricular rate is slow, the patient gets along comfortably.

Necropsy disclosed marked glandular and sclerotic changes consistent with myxedema.

I wish to express my indebtedness to Dr. W. D. Reid, Dr. Charles F. Branch and Dr. George Levene for their assistance in making this paper possible.

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PREVENTION OF COLDS BY VACCINE THERAPY

(Continued)

BY HALSTEAD G. MURRAY, M.D.*

IN the October 9, 1930 issue[1] of the *New England Journal of Medicine,* there appeared an article describing results obtained along preventive lines, in persons susceptible to head colds, by the use of a catarrhal mixed vaccine. The results, although tried on a comparatively small group, were rather encouraging. This work has been continued at the Clinic of the Dennison Manufacturing Company and the following gives, briefly, further figures in cold prevention by a vaccine, using as a control a group of uninoculated persons.

The inoculated group had had the stock catarrhal mixed vaccine yearly in five graduated weekly doses, for two years or more previous to this study. In September, 1930, this group of eighty-five persons were all given ½ c.c. of the stock catarrhal vaccine; three months later the group were again inoculated with ½ c.c. of the stock catarrhal vaccine. The hope was that in this previously inoculated group an inoculation of ½ c.c. every three months would prove to be as effective in preventing colds as the older method of giving the person each year five weekly graduated inoculations. The newer method meant only three or four inoculations a year and would prove more economical by a saving of time for the patients in taking the treatment. Results showed that this inoculated group had a slight reduction in the number of colds as compared to the previous winter, so the newer method is probably as efficacious as the original method of treatment, if the person has had the five graduated doses to begin with.

In the former study, a group of sixty-three persons, before having the vaccine, averaged four colds per person per year; after vaccine treatment they averaged only 1½ colds per person per year. The second study, as stated above, was on a group of eighty-five inoculated persons compared to a control group of eighty-five uninoculated persons. These persons were grouped as to age, sex, departments of the factory, type of work, and home conditions, so that the control group would be as comparable as possible with the inoculated group. The following questions were sent to both groups, three months after the first inoculation, with a note of explanation to members of the control group as to why they were being sent this questionnaire:

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Questions sent to both groups	ANSWERS: Inoculated group 85 persons	Control group 85 persons
1. How many colds do you average a year?	Four (before taking any vaccine treatment).	Two.
2. How many colds did you have from September 30 to Dec. 31?	Thirty-four persons had forty-two colds.	Forty-four persons had fifty-four colds.
3. How much lost time from work on account of colds for same period?	Five persons lost thirteen days.	Six persons lost nine days.
4. Have you ever had the vaccine treatment for colds?	Eighty-five persons had had the complete treatment.	Seven persons had had complete treatment (none had had it for at least two years).
5. Are you susceptible to colds?	Eighty-five persons were susceptible.	Twenty-three persons were susceptible.
6. Are you particularly free from colds?	Fifty-two persons were entirely free.	Forty-one persons were entirely free.

For this period the inoculated group made a much better showing than the control group except for lost time from work.

In March, 1931, both groups were checked again, the inoculated group having had another inoculation of ½ c.c. in January 1931. The following figures are for the second period, January 1, 1931, to March 31, 1931:

Inoculated Group	*Control Group*
49 persons were entirely free.	50 persons were entirely free.
36 persons had 50 colds.	35 persons had 43 colds.
10 persons lost 27 days.	2 persons lost 5 days.

During this period, January 1 to March 31, the control group made a slightly better showing than the inoculated group, but this is the period of the year when upper respiratory infections are greatest in number and the controls were a non-susceptible group while the inoculated were 100% susceptible to colds. However, for the six months' period, the inoculated group made the better showing.

For the Six Months' Period, September 30, 1930 to March 31, 1931, the following results were obtained:

Inoculated Group	*Control Group*
30 persons were entirely free.	21 persons were entirely free.
55 persons had 91 colds.	64 persons had 97 colds.
13 persons lost 32 days.	8 persons lost 16 days.

In the inoculated group, during the six months' period, there were reported 77 colds, which lasted less than 24 hours, with no other symptoms except sneezing, a slight irritation in the region of the nasopharynx and "running nose". These were not counted as true colds in the figure given above. This figure of 77 lends weight to the theory that the real direct cause of a head cold is possibly a filterable virus, and the mixed catarrhal vaccine prevents, in many cases, the symptoms brought on by secondary bacterial invaders of the respiratory tract, in this way shortening the course of the disease usually called "a cold in the head".

From observation of having treated hundreds of head colds each year for the past ten years, it has seemed that fatigue is the chief indirect cause of more than 90% of all colds.

CONCLUSIONS

1. In a group of eighty-five persons, 100% of whom were susceptible to colds, compared with an uninoculated control group in which less than 25% were susceptible to colds, 33 1-3% were free from colds and in the control group only 25% were free from colds during a six months' period from September 30, 1930 to March 31, 1931, covering seasons of the year when colds are most prevalent.

2. Figures and clinical experience with a mixed catarrhal vaccine in this Clinic have shown that vaccine therapy offers as much, if not more, than any other preventive measure we have tried against colds at the present time, and in those persons susceptible to several colds a year, it is well worth a trial.

REFERENCE

1 Murray, H. G.: Prevention of colds by vaccine therapy. New Eng. J. Med. 203:727, Oct. 9, 1930.

A CASE OF BENIGN AND MALIGNANT TUMORS OF THE COLON*

BY GEORGE LEVENE, M.D.,† AND HELEN MATTHEWS, M.S.†

A WOMAN, aged forty-two, was referred to our department for gastro-intestinal examination. Her surgical history recorded an appendectomy eight months previous to her admission. Her medical history was negative. Her father's sister and brother had died of cancer.

Her present illness dated back two months. Diarrhoea, with pain in the right lower quadrant, was the chief complaint. On one occasion

FIG. 1. Colon filled with opaque enema. "C" Carcinoma of ascending colon. "B" Adenoma of transverse colon.

the patient passed a large amount of blood per rectum. An hour later more bright red blood was passed. This was the only occurrence of melena and in the interval she had experienced only occasional low abdominal pain. Physical examination revealed no tenderness. There was a palpable mass in the right abdomen corresponding to the site of the ascending colon.

In the gastro-intestinal series, the esophagus, stomach and duodenum were negative. The twenty-four hour examination showed the transverse colon practically empty with no defect which could be identified as organic. A barium enema revealed a redundant descending colon. As the barium passed through the transverse colon the stream was divided by a circular vacuolated area which would not fill. Attempts to fill this area by manual pressure resulted merely in displacing the filling defect to the right or to the left, over a fixed distance of about four inches. Evidently the filling defect was produced by a small tumor, undoubtedly benign, attached to the wall of the colon by a pedicle about two inches in length, and appearing as an intraluminal polyp. The filling defect in the ascending colon was constant. The lumen was partially obliterated in the region of the hepatic flexure, and the nature of the defect offered definite evidence of organic disease at that site—probably carcinoma.

A resection of the ascending colon was done by Dr. J. Emmons Briggs. The benign tumor was removed through this opening and a lateral anastomosis completed. The pathologist reported adenocarcinoma (grade three) of the ascending colon, involving musculature and serosa. Unfortunately the benign tumor was lost in transit to the pathologic laboratory. Macroscopically it presented every appearance of a pedunculated adenomatous polyp.

There is apparently a paucity of literature dealing with the roentgen diagnosis of benign and malignant growths in the same colon. Surgical reports show twenty-five of thirty cases of cancer of the rectum accompanied by adenomata[1]. Stewart[2] believes that there is close relationship in the stomach, rectum and colon between simple adenomatous polypi and carcinoma. Rankin[3], in stressing the importance of the relation between polyps of the colon and carcinoma, states that their "association . . . was fairly proved to be more than accidental". Primrose[4] reviews a large series of operations for the removal of cancer of the large intestine and rectum with no mention of the concurrence of benign and malignant growths.

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2 Stewart, M. J.: Observations on relation of malignant disease to benign tumours of the intestinal tract. Brit. M. J. 2: 567, 1929.

3 Rankin, F. W.: Malignant lesions of the large bowel. New Eng. J. Med. 204: 1353, June 25, 1931.

4 Primrose, A.: Tumours of the large bowel. Canad. M. A. J. 15: 897, Sept. 1925.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17381

A QUESTION OF TRICUSPID STENOSIS. TERMINAL INFECTION FOLLOWING THE USE OF SOUTHEY'S TUBES

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. SVEN M. GUNDERSEN*: This patient was a twenty-seven year old married Italian who entered on March 14 for the third time.

The past history showed that he had been in the Children's Hospital at the age of eleven with rheumatic fever.

He had felt perfectly well until two years before his final admission, when he began to have dull right upper quadrant pain aggravated by exercise and relieved by resting and lying down. This continued until his *first admission* in October, five months before his death, when it was seen that he had definite cardiac enlargement, systolic and diastolic apical thrill, a rough apical to-and-fro murmur transmitted to the axilla, an early diastolic murmur over the aortic area and in the third left interspace near the sternum, and a rough systolic in the same areas. The pulmonic second sound was much accentuated. In addition he had an enlarged liver, slightly tender. There were no other signs of congestive failure. He improved with digitalization and was discharged at the end of October.

Second admission. At the end of January, three months later, he came back with the same sort of symptoms, but increased in intensity. Examination was essentially as it had been at the first admission except that he had slight clinical jaundice and his liver seemed a little more enlarged. There was no edema of the extremities, no ascites or hydrothorax. This time he was given ten intravenous injections of 50 cubic centimeters of 50 per cent glucose with only questionable benefit.

History of interval. He entered for the third time only a month after his second discharge. His history showed that two days after discharge he began to have edema of the ankles. This became progressively worse until admission. He also became more dyspneic and had some orthopnea and cough. All these symptoms increased in severity. Two weeks before admission he had an acute attack of rheumatic fever involving the wrists, elbows and shoulders. In the Outpatient Department admission for salyrgan therapy was advised.

Third admission, March 14. At this admission he was seen to be a swarthy Italian lying propped up in bed, slightly dyspneic and definitely jaundiced but in no acute distress. Examination was otherwise essentially as it had been before except that he seemed sicker and there was greater cardiac enlargement, definite systolic pulsation in the veins of the neck, which seemed to fill from below, signs of fluid at the right base, and what was thought to be a new murmur of tricuspid stenosis and regurgitation. In addition there was marked pitting edema over the lower back, the sacrum and the legs, and definite ascites.

He did not do well. He was digitalized to the point of toxicity and was given salyrgan, which gave only fair diuresis. In addition he had three chest taps which removed some 700 to 1000 cubic centimeters of fluid at each time, six doses of salyrgan, and an abdominal tap which yielded only 400 cubic centimeters of cloudy yellow fluid with the character of a transudate. A special diet with low sodium ion content was given in an attempt to produce diuresis. He did not seem to do well on that except for four days. He was seen by Dr. White, who thought Southey's tubes were in order. Two tubes were put in each foot the second of April, about three weeks after admission, with removal of 7 liters of fluid. He seemed to be doing well, but two days after the tubes had been inserted his left foot became infected. The infection spread quite rapidly up the leg, with a fever of 102° and a definite shaking chill. He died on April 8, twenty-five days after admission and four days after the onset of the infection.

CLINICAL DISCUSSION

DR. WILLIAM B. BREED: It seems to me that this resolves itself into a somewhat academic question as to whether it is possible to diagnose a case of tricuspid stenosis on the basis of a localized late diastolic murmur separate from the mitral stenosis murmur. Everyone who saw this patient admitted that he very probably had tricuspid stenosis as well as his other valve lesions, but there was some disagreement as to whether there was a localized definite diastolic murmur separate from the mitral. I felt that there was a localized murmur and was willing to say that it was tricuspid stenosis. We hoped that possibly Dr. Mallory could demonstrate a tricuspid stenosis for us. It was only a hope.

DR. PAUL D. WHITE: Tricuspid stenosis is a difficult and hazardous diagnosis, and is usually wrong. There is only one other case that I recall, that of a patient I saw during the war who did have a murmur suggesting tricuspid steno-

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sis; the middiastolic murmur at the lower end of the sternum was very much louder than that at the apex. That patient did have tricuspid stenosis in addition to mitral stenosis at postmortem examination. That is the only case I can recall in which I have felt justified in making the diagnosis from a murmur at the lower end of the sternum. If there is a marked mitral stenosis a middiastolic murmur may easily be transmitted to the sternum, but there may be both mitral and tricuspid murmurs superimposed. Of course when there is mitral valve disease the bet is perhaps an even one that there is also some tricuspid valve disease but not a high degree of stenosis. Frequently one can find some thickening of the line of closure of the tricuspid valve in a chronic rheumatic heart, but a diagnosis of tricuspid stenosis certainly is justified in only very rare cases. The pulsation of the veins of the neck and the pulsation of the liver are unreliable evidence in making a diagnosis of tricuspid stenosis.

A PHYSICIAN: How about the pulmonary arteries in those cases?

DR. WHITE: One finding is that the lung fields may be clearer, inasmuch as tricuspid stenosis tends to prevent engorgement of the pulmonary vessels and lung fields. This may be helpful; I do not know.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Rheumatic heart disease.
Congestive failure.

ANATOMIC DIAGNOSES

Rheumatic heart disease; aortic and mitral stenosis; tricuspid stenosis and insufficiency.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We found very marked rheumatic heart disease with an extreme degree of aortic stenosis, very marked mitral stenosis and a considerable involvement of the tricuspid valve which certainly would have produced insufficiency and some degree of stenosis as well.

DR. WHITE: What was the circumference of the valve?

DR. MALLORY: We did not open it. So far as I can guess without having opened it first, it is in the neighborhood of 8 centimeters.

The chordae tendineae are very definitely shortened and the cusps are adherent without very much thickening. I think it is fair to assume that he did have a real though only a moderate degree of tricuspid stenosis and very definite insufficiency.

DR. WHITE: Was there any report of a fluoroscopic examination of the lung fields?

DR. GUNDERSEN: He did not have one.

CASE 17382

ANASARCA FOLLOWING PREGNANCY

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. JOHN W. CASS, JR.*: This patient was a thirty-two year old English housewife who was admitted to the hospital March 28 and discharged April 10. She complained of swelling of the body and itching of the skin of ten days' duration.

She had a past history of scarlet fever at the age of two with a discharging right ear for many years following it. She had also had frequent sore throats. She had tonsillectomy and adenoidectomy at the age of six years. She had facial paralysis twelve years before admission lasting for a year. Her menstruation was irregular and scanty.

Her family history was negative. She had been married eight years and had had two miscarriages and twins now living and well at four years and a half.

The present illness began eight years before admission, when she had a severe attack of tonsillitis and with this hematuria for a week. She had no edema at that time. There is no mention of the blood pressure. Since that time she had had nocturia once a night. During the next two years she had several attacks of hematuria, nausea and vomiting of two or three days' duration. She was otherwise presumably quite well until six years ago, when after a good deal of vomiting and slight edema of the ankles she had a stillborn child at eight months. Then she was quite well until four and a half years ago, when she had a very stormy pregnancy which her doctor wished to interrupt, but at seven and a half months she delivered twins. Following this she had many upper respiratory infections, but no edema or hematuria. One year ago she had sudden dimness of vision which gradually disappeared after a few months. A month after the onset of this she had sudden swelling of the abdomen and legs, disappearing overnight. Then she was quite well until five months ago, when she became pregnant again. This pregnancy was interrupted at six weeks. Following it she had persistent edema of the ankles. At this time the systolic blood pressure was 186. She became listless, lost her appetite and vomited frequently. Six weeks before entry she went to a New York hospital where she stayed for three weeks. She developed a severe sore throat, bled from the throat and vomited almost continuously. She was discharged to the Massachusetts General Hospital without any improvement. She returned to Boston and remained at home for two weeks, growing weaker. A week before admission she had marked edema

*Recently senior interne on the West Medical service.

of the face, especially of the lips, trembling of the hands and a blood pressure of 240. She had a severe nosebleed. Ten days before admission she developed a generalized itching rash. She had been taking digitalis grains iii daily for two weeks prior to entry and one to three white pills each night to induce sleep. She was acutely ill on admission.

Physical examination showed a pale woman with a generalized papular eruption, a greatly enlarged heart, ascites, and edema of the legs, the vulva, and the hands and arms to the shoulders. Her blood pressure was 140/80. There was slight twitching of the hands and coarse tremor of the fingers. There was marked retinal degeneration.

The urine showed a large trace of albumin. There were rare red blood cells to 20 per high power field and occasional granular casts. Blood examination showed 30 per cent hemoglobin. The white blood cell count varied during her stay from 24,000 to 19,000. The stools were normal. A renal function test the day after admission showed less than 10 per cent secretion in two hours. It was very hard to get into her veins and only one puncture was successful, eight days after admission. At that time the non-protein nitrogen was 185 milligrams, the total serum protein 4.8 per cent, the cholesterol 116 milligrams.

Nine days after admission she had an electrocardiogram which showed sino-auricular tachycardia, rate 130, inverted T_1 and T_2, low voltage and slight left axis deviation.

A chest film showed pericardial effusion, passive congestion of the lungs and fluid at the left base.

Her course in the hospital was steadily downhill. The edema increased. Three days after admission there was a slight discharge from her right ear. An ear consultant said this was due to discharge from the canal wall and not to active infection. After six days she began to have exfoliation of the skin of the hands and feet and a presystolic gallop heart rhythm was noticed. A pericardial friction rub was heard at the right of the sternum. At this time the blood pressure was 160/70. There was bronchial breathing over the left lower lobe, with definite consolidation. She failed rapidly during the last two days and died twelve days after admission. She had no convulsions and was perfectly conscious to the end.

Dr. F. Dennette Adams: I saw this patient on only her first three or four days in the hospital. It seemed to be a perfectly definite case of terminal chronic nephritis. I believe that what was interpreted as being consolidation of the left base was actually compression, because of the fact that she was known to have a pericardial rub several days before that. I should be surprised if there was pneumonia. Compression of the left lower lobe based on pericardial effusion is frequently confused with consolidation.

Clinical Diagnoses (from hospital record)

Chronic nephritis with uremia.
Uremic pericarditis.

Anatomic Diagnoses

Chronic glomerulonephritis.
Anasarca.
Uremic pericarditis.
Pulmonary atelectasis.

Pathologic Discussion

Dr. Tracy B. Mallory: There was no pneumonia. There was complete collapse of both lower lobes. There was a small amount of fluid in the chest and a large amount in the pericardium, turbid enough to serve as definite evidence of pericarditis.

Beyond that we found generalized edema, anasarca and quite atrophic kidneys, one much smaller than the other, as occasionally happens. The right weighed 175 grams, the left 100 grams, not much over half the normal weight for the pair. The capsules stripped with great difficulty, leaving pale granular surfaces with a markedly thin cortex. It was a perfectly typical gross picture of chronic glomerular nephritis, and microscopic examination confirmed that.

There was moderate hypertrophy of the heart. It weighed 425 grams, which is considerable for a relatively small woman.

It seems to me that the most interesting part of the case is the relationship of her various pregnancies, completed and uncompleted, to the nephritis. Dr. Smith and Dr. Berman, who took care of her during two of these, have been good enough to come down. I think they can give us some additional history and tell us something about the treatment in the early stages.

Dr. Judson A. Smith: The chief contribution I have to this discussion is the additional history on the case. We have no record of her having any miscarriages. She first came under our observation a little over six years ago in what we supposed was her first pregnancy, when she was a clinic patient at the Lying-in Hospital. She reported at the clinic when she was about three months pregnant. On her first visit we found a slight trace of albumin in her urine. Her systolic blood pressure was 124. There were no symptoms. She was watched at the clinic throughout her pregnancy and on four occasions was found to have a slight trace of albumin in her urine. At other times the urine was negative. There is one report of a few hyalin casts being found. The systolic blood pressure throughout her first pregnancy was never over 124. It varied from 96 to 124 systolic.

In the eighth month of her pregnancy she arrived at the hospital after a very rapid labor,

with the baby's head born and a macerated fetus. Presumably the baby had died before the labor started and birth trauma had nothing to do with its death. Immediately after her delivery her blood pressure was found to be 150. She was discharged from the hospital in the usual time and followed in the Toxemia Clinic. A month later she had a blood pressure of 160/72 and a slight trace of albumin in her urine. Three months after her delivery she had a slight trace of albumin and a blood pressure of 114. She was not seen again at the hospital until she was pregnant a second time. She had been discharged with a diagnosis of toxemia without convulsions, although the resident made a note that it was "probably chronic nephritis," which was a pretty good diagnosis for an obstetrician.

In April, a little more than a year later, she returned to the hospital three months pregnant again. She had a slight trace of albumin in the urine then. She was sent to the hospital for renal studies. Her renal function then was 35 per cent in two hours. Her blood pressure was 110 to 120. Her non-protein nitrogen was only 27. Her eyegrounds were examined and found to be normal. She was told that she probably had chronic nephritis and that it was very doubtful that she could carry this pregnancy to term, but in view of the fact that she had lost her first baby she was going to be allowed to try it, with careful watching, with the idea that if she got worse the pregnancy would be terminated.

She was discouraged by this advice from the hospital and resorted to me to get her through the pregnancy. Rather against my will I decided to take care of her. I followed that pregnancy very carefully. She persistently showed a slight trace of albumin in the urine. Sometimes the urine was negative, but most of the time she had a little albumin in it, very rarely casts; there were no symptoms, no edema and no elevation of blood pressure. At any rate she arrived at the end of the eighth month clinically well except for the albumin in her urine. Her blood pressure was then 135. Because the baby seemed to be of good size and she had lost her first baby by intrauterine death, maceration and so on, I decided to induce labor. She was sent to the Lying-in Hospital in October. Before labor was induced she had a two hour test. In the original studies the two hour renal tests were normal. In October, at the end of eight months, the blood pressure was 130 or 135. She still had a slight trace of albumin and a urine concentration test showed then, I suppose, some fixation of gravity—the highest was 1.017. A few days later labor was induced with castor oil and she unexpectedly delivered twins, both of which are alive.

She had an ordinary normal convalescence. Following her discharge from the hospital she was seen at frequent intervals. She always showed a slight trace of albumin. She had no elevation of blood pressure except once when it was 140.

After three months she was referred to an internist, Dr. Buck of Boston. He reports: "October. At that time she had a blood pressure of 148, a slight trace of albumin in the urine and a sediment showing two or three white cells, three to six red cells per high power field and occasional casts. A concentration test varied from 1.008 to 1.024,"—I suppose that was normal. "The phthalein output was 30 per cent, the non-protein nitrogen and the uric acid normal, the blood sugar 90 milligrams."

Then she went to New York and we lost track of her for two years. She was supposed to be under the care of her own doctor there. She had been carefully warned not to have any more pregnancies.

In September, a year and a half before her death, she reported that she was just over one period. She came to the Lying-in Hospital again for observation. Her blood pressure was 170 to 180. She was having headaches. She had a large trace of albumin in her urine. A phthalein test was 35 per cent, the non-protein nitrogen 29 and the blood pressure 170 to 180. There was no edema, nothing except the headaches. She was immediately aborted because she was an outspoken chronic nephritic.

She was sent back to New York under the care of a doctor there. From that time we had no further report.

From an obstetrical point of view this patient illustrates the difficulties that such cases present. In the first place it was extremely difficult at the onset six years ago to say positively that she had chronic nephritis, because we have a number of cases that behave like this in one pregnancy and do not get clinically worse subsequently. They may have two or three pregnancies and they may show some signs of renal insufficiency during each pregnancy and not have definite chronic nephritis. It is very difficult to pin a diagnosis of chronic nephritis on a patient in the beginning. If we assume that she has chronic nephritis, then it is difficult to predict what the course of the disease will be. She may get rapidly worse during the course of her pregnancy so that the pregnancy will have to be terminated before the baby is viable. If we could foresee this result, we would of course prefer to terminate the pregnancy at once, as we can do no good and may do harm by delaying the interruption. On the other hand, she may go through her pregnancy with little or no demonstrable change in her kidney condition. We then succeed in getting a baby. But if the patient subsequently, as in this instance, goes on to a definite and fatal chronic nephritis, we are left wondering what, if any, effect the pregnancy had in accelerating the

progress of her nephritis. In considering a case of this type we must bear in mind that if the patient has chronic nephritis she is going to get worse sooner or later anyway, and if we interrupt her pregnancy before viability it may well be that we deprive her of the only chance she will have to have a baby. This patient went through her second pregnancy without getting distinctly worse clinically, and a year after delivery she still was not any worse than she was before, in fact was a little better. It is a difficult question just what effect her second pregnancy may have had on her chronic nephritis, and we cannot answer it with our present knowledge. My own feeling is that she had had chronic nephritis for years, was going to die of chronic nephritis anyway, that she happened to have her pregnancies at a stage in her chronic nephritis when she still had sufficient renal capacity to go through them and that the pregnancies probably had little if any effect in hastening the outcome. It may be of course that interrupting this patient's second pregnancy and preventing further pregnancies would have prolonged her life somewhat, but it still remains a debatable point whether prolonging her life a few years is a sufficient compensation in her mind for the sacrifice of one of the main satisfactions of life. We shall not be able to handle these problems intelligently until we can make a positive early diagnosis of nephritis, predict with some accuracy the course of the disease and predict the probable effect of pregnancy on it.

DR. SAUL BERMAN: I think Dr. Smith has stressed the important points. Many of these women coming to us have either lost their babies or have had babies that were not strong enough to live, and come back again hoping to have a living child. A great many of them show definite chronic nephritis. We usually refuse to let them go ahead. Many patients however, like this one, show very slight symptoms of nephritis. They may have only a slight elevation of blood pressure with or without slight albuminuria. Many of these go through and have living babies. The sad part is that a great many, we fear, end up with an early death. The problem today is for the clinicians to give us an adequate test to diagnose chronic nephritis in the early stage—the so-called potential nephritic.

DR. SMITH: I do not think that this type of case is particularly common. The cases we definitely label chronic nephritics are those who start off with some elevation of blood pressure and some albuminuria and get worse in a few months. A typical chronic nephritic with pregnancy is in bad shape at the end of four to six months, much earlier than is the patient with preëclamptic toxemia. These people are usually marked as chronic nephritics and usually the pregnancy is terminated. The potential or suspected nephritics, on the other hand, will usually go through. A certain number get babies. Some of these represent the type of cases that at Johns Hopkins are called "low reserve kidneys". They are normal in early pregnancy and they end up by having slight elevation of blood pressure, some edema and albuminuria. After the pregnancy they recover rapidly, and show no evidence whatever of renal trouble until they get pregnant again. We have usually referred to these patients as recurrent toxemias. Prolonged follow-up of these cases may show that some or all of them represent early mild chronic nephritis.

DR. BERMAN: Many people who are diagnosed as chronic nephritics and who show the same clinical picture that she did probably live longer. The majority, however, seem to grow progressively worse.

DR. WILLIAM B. BREED: There is a very important part in her history, that of recurrent sore throats recently. That may account for her rapid downward course, regardless of her pregnancies.

DR. ADAMS: Do you take any determinations of the diastolic blood pressure? Sometimes a patient has a diastolic pressure of 90 and yet may have a systolic of not much more than 130.

DR. BERMAN: Yes. We watch the diastolic very carefully*, but that may be the only clue we have. If there is no other evidence we cannot do anything about it. The patient has to attempt to go through the pregnancy.

DR. ADAMS: Do you keep no record of the diastolic?

DR. BERMAN: Yes, we do.

DR. MALLORY: From the histologic point of view the lesions seem extremely chronic. There is nothing to suggest any rapid progress recently.

There are very large areas of the cortex which are reduced to mere scar tissue. In between them are a few dilated tubules, persisting glomeruli that look as if they were still functioning. There are foci of intracapillary endothelial proliferation. There is not much capsular proliferation, no fibrin; there are no thrombi and not many lymphocytes. The blood vessels in these cases always show definite changes. There is a great deal of thickening of their walls, often with fatty degeneration. Sometimes the lesions in the blood vessels in these chronic cases appear very acute, sufficiently so to suggest that the recent progression of symptoms has been due to a superimposed progressive vascular disease rather than to a progres-

*Other members of the staff of the Lying-in Hospital have observed a marked change in the attention paid to the diastolic blood pressure during the past three to five years. Formerly only the systolic was considered. Recently the diastolic has received more and more attention, especially in cases where the medical problem seems more important than the obstetrical.—Ed.

I imagine that the practice of the obstetricians and obstetrical nurses has followed an evolution parallel to that which has occurred in the medical profession at large. Diastolic pressure, long neglected because it is more bother to take it than to take systolic alone, has gradually come to be considered the more significant of the two and essential as a check on the interpretation of systolic pressure. I doubt if things are different in obstetrics. R. C. C.

sion of strictly glomerular lesions. I do not think this case especially suggests that, however. All the vascular lesions as well as the glomerular ones look as if they had been present a long time. Histologically the lungs show, besides collapse, a moderate degree of sclerosis in the pulmonary vessels, more than one would expect in a thirty year old woman.

DR. FREDERICK T. LORD: Was there any evidence of generalized arteriosclerosis?

DR. MALLORY: Very little in the larger vessels, but microscopically the intermediate and small arteries show quite uniform involvement.

DR. LORD: Is it possible to conjecture the etiology of the disease? Was it secondary to hypertension?

DR. MALLORY: I think there are about equally strong arguments either way. I should certainly guess from these kidneys that her nephritis had gone back years, probably to childhood. It seems rather surprising that she did not show more evidence of it at the time of her first two pregnancies.

DR. LORD: Focal streptococcus infections precede or accompany the onset of glomerular nephritis in a large proportion of cases, and a streptococcus toxin may be responsible for the renal lesions. The investigation of Longcope and his associates suggests that the removal of a focus of streptococcus infection may result in recovery. Persistence of the infection in their series was associated with chronicity of the nephritis or a fatal ending. Does not this case seem to be an instance of toxic injury of the kidney in consequence of a focus of streptococcus infection?

DR. MALLORY: I should agree.

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THE DATE OF THE NEXT ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY

IT will be recalled by many that the synchronous annual meetings of the Massachusetts Medical Society and the American Medical Association deprived our State Society of the presence of a considerable number of its active members. The *Journal* was asked to comment on this complication which led to a statement in the issue of June 25 setting forth that the by-laws of the Massachusetts Medical Society provided that "the annual meetings of the Society shall be held in Boston, on the second Wednesday of June, unless otherwise ordered by the Council". The provisions of this by-law have been usually followed unless an invitation to hold the Annual Meeting elsewhere had been received or some other good reason existed.

This statement inspired Dr. Olin West, Secretary of the American Medical Association, to write to the *Journal* with the explanation that the selection of a date for the Annual Meeting of the American Medical Association necessitates consideration of many important matters, such as conflict of dates of meetings of large organizations, local conditions in the city in which the meeting is to be held, transportation details and many other factors which may not be of general interest.

Dr. West feels that state societies can more easily arrange to change the dates of their annual meetings than would be feasible with the American Medical Association. Even assuming that all state societies will stand ready to follow this suggestion, it may be pertinent to suggest to the Board of Trustees of the American Medical Association that an announcement of the date of its annual meeting should be made as early as possible, because some of the state societies begin to make contracts for meeting places almost immediately after the selection of the date.

Boston is a popular convention city and, if a medical meeting is to secure good accommodations here, it has been found advisable to secure options very soon after the Annual Meeting.

Since it is shown in Dr. West's letter that it would be impossible to give preference to any one state society and inasmuch as it is important to avoid conflicting dates, this matter may be worthy of consideration by the Council of the Massachusetts Medical Society at its October meeting.

It has been suggested from within our Society that it might be wise, owing to the popularity of the spring months for medical meetings of greater or less prominence, to change the date of the annual meeting to the Fall, as has been done by other state societies. This radical departure from established precedence, since it would necessitate a change in the by-laws, would also be a matter for the Council to decide.

HOW WILL MEDICINE BE SOCIALIZED?

ON page 601 of this issue will be found a thought-provoking letter from Alfred Cox, O.B.E., medical secretary of the British Medical Association, addressed to Dr. J. F. Baldwin of Columbus, Ohio, discussing the various problems of state medicine as they have been encountered in England. This letter, the main purpose of which is to answer some of the arguments against state medicine proposed by Dr. William

Dameshek in the *Journal* of June 4, 1931, should command the attention of all of our readers who are interested in the basic problems now confronting the profession.

One paragraph should be considered as particularly pertinent.

"As the Secretary of a medical organization with a great experience in these matters, I would with all my force urge similar medical organizations throughout the world not to shut their eyes to the developments that are going on and not to leave the politician to find the answer to the problem 'how are we to ensure that our working population can get the medical attendance it deserves on terms which it can afford, and in a way which a self-respecting citizen, not deserving charity, can accept'."

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

CLUTE, HOWARD M. B.S., M.D. Dartmouth Medical School 1914. F.A.C.S. Surgeon, Lahey Clinic. Assistant Surgeon, New England Baptist Hospital. His subject is: "Graded Surgery in Common Duct Stones." Page 563. Address: Lahey Clinic, 605 Commonwealth Avenue, Boston.

DAVIS, MAX. A.B., M.D. Harvard University Medical School 1925. Second Assistant Obstetrician, Massachusetts Memorial Hospitals. Gynecologist to Outpatient Department, Massachusetts Memorial Hospitals. Assistant in Obstetrics and Gynecology, Boston University School of Medicine. Address: 311 Commonwealth Avenue, Boston. Associated with him is:

WALKER, ELISABETH W. A.M. Boston University 1930. Address: 110 Highland Avenue, Arlington, Mass. Their subject is: "Results with the Friedman Modification of the Aschheim-Zondek Test for Diagnosis of Early Pregnancy." Page 566.

ARMSTRONG, DONALD B. ScD., M.D. Columbia University College of Physicians and Surgeons 1912. Fourth Vice-President, Metropolitan Life Insurance Company. Member, New York State Committee on the County Health Unit. His subject is: "Adequate County Health Organization, Tuberculosis Control and the Medical Profession." Page 569. Address: 1 Madison Avenue, New York City.

PARKER, GEORGE L. M.D. Tufts College Medical School 1921. University of Pennsylvania Graduate School of Medicine, Pediatrics, 1927. Assistant Physician, Lakeville State Sanatorium. Children's Memorial Hospital, Chicago, Illinois 1928. His subject is: "A Study of 20 Cases of Sacro-iliac Tuberculosis at the Lakeville State Sanatorium." Page 573. Address: Lakeville State Sanatorium, Middleboro, Mass.

CRAWFORD, LAWRENCE P. M.D. Rush Medical College 1904. His subject is: "Treatment of Acute Intestinal Intoxication Based Upon Clinical Findings in the Colon." Page 577. Address: 75 Elm Avenue, Wollaston, Mass.

HEALY, JAMES CLARKE. Ph.G., M.D. Tufts College Medical School 1927. Junior Visiting Physician, Boston City Hospital. Assistant Visiting Physician, Long Island Hospital. Visiting Physician to Out-Patients, Carney Hospital. Instructor in Medicine and Pharmacology, Tufts College Medical School. His subject is: "Therapeutics and Toxicology of the Sulphocyanates." Page 581. Address: 1208 Massachusetts Avenue, Cambridge, Mass.

REID, HOWARD STANTON. M.D. Boston University School of Medicine 1929. Resident Physician of the Evans Memorial of the Massachusetts Memorial Hospitals 1931. His subject is: "Congenital Heart Disease. Report of a Case with Malformation of Auricle and Hemorrhagic Effusion into the Pericardium." Page 583. Address: Cohasset, Mass.

MURRAY, HALSTEAD G. M.D. Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1919. Medical Director, Dennison Manufacturing Co., Framingham, Mass. Assistant Instructor in Industrial Hygiene, Harvard School of Public Health. His subject is: "Prevention of Colds by Vaccine Therapy (Continued)." Page 586. Address: 81 Dennison Avenue, Framingham, Mass.

LEVENE, GEORGE. M.D. Boston University 1925. Associate Member, Evans Memorial for Clinical Research and Preventive Medicine. First Assistant Roentgenologist, Massachusetts Memorial Hospitals. Instructor in Roentgenology, Boston University School of Medicine. Address: 351 Winter Street, Norwood, Mass. Associated with him is:

MATTHEWS, HELEN. B.S., M.S. Technical Assistant in Roentgenology, Evans Memorial Hospital. Address: 29 Fairfield Street, Boston. Their subject is: "A Case of Benign and Malignant Tumors of the Colon." Page 588.

IMPORTANT NOTICE

ON and after September 23 the offices of the *New England Journal of Medicine* and the Massachusetts Medical Society will be in their permanent quarters at the Boston Medical Library, 8 The Fenway. The telephone number will remain the same, Kenmore 2094.

Please make a note of this change in order to avoid confusion.

TYPES OF RESPIRATORY FAILURE IN POLIOMYELITIS

Indications for Use of the Drinker Respirator

BY JAMES L. WILSON, M.D.

Children's Hospital, Boston, Mass.

THE present incidence of poliomyelitis and the more general knowledge of the possibilities of the Drinker apparatus for prolonged artificial respiration have directed increasing attention to the treatment of those forms of this disease which may prove fatal. Unfortunate newspaper publicity has given growth in the lay mind to vague and widespread ideas that any child becoming ill with infantile paralysis must soon be expected to be enclosed by this "iron lung". Exaggerated as these ideas may be, it is true that in a small percentage of all cases the use of the Drinker Respirator is apparently necessary to save life. However, the treatment of a patient with infantile paralysis by the use of the Drinker Respirator can be carried out only with a considerable expenditure of time and money. Exact determinations of the value of this effort, and therefore definite knowledge of the indications for the use of the respirator in the future will depend on the accuracy of the clinical observations of the patients now being so treated. Because of the variations in response of the different types of the fatal forms of poliomyelitis to the action of the respirator, it seems that there is now necessary a more careful analysis of the mechanism of respiratory failure in the individual cases and a more consistent use of terminology.

Poliomyelitis can prevent efficient respiration in three ways:

(1) Directly, by actual paralysis of the primary respiratory muscles: the intercostals and the diaphragm.

(2) Directly, by disturbance of the nerve "centers" in the medulla or "bulb" which control respiration.

(3) Indirectly, in patients with paralysis of the pharynx, by the collection of mucus or vomitus around the glottis, causing, either by actual obstruction or by setting up irritative spasms of the glottis, constantly interrupted inspiration and consequently shallow, irregular, and ineffective respiratory efforts.

In the first situation, that with actual paralysis of the intercostal muscles or of the diaphragm, the lesion exists in the dorsal and cervical cord. This type of the disease, therefore, should not be classed as "bulbar", although respiratory failure occurs.

The lesions existing in the second and third situations,—involvement of the respiratory centers or paralysis of the pharynx,—are in the medulla, and therefore this type of the disease is commonly and properly called "bulbar".

The respiratory difficulty in any patient ill with poliomyelitis may be due to a single one of these three factors or to any combination. Paralysis of the respiratory muscles very frequently occurs alone without "bulbar" complications. Paralysis of the pharynx, the palate, or the facial muscles, all innervated from the medulla, is very frequently associated with apparent involvement of the "vital centers", most evidently the respiratory center. The marvelously complicated and congested mass of nerve paths and nerve centers of the medulla makes it remarkable that such association does not always occur.

The use of the Drinker Respirator is most logical and has proved most effective, not in the "bulbar" forms of poliomyelitis, but in patients with paralysis of the intercostal muscles or of the diaphragm. An attempt to prolong the life of a patient with paralysis of the respiratory muscles is sensible only in the hope that much of the paralysis seen in the acute state will be temporary. The Drinker Respirator has made it possible to learn that this hope is justified. Time permits a variable return of power to the respiratory muscles. So far it seems that most patients with paralysis of the respiratory muscles will regain, after a few weeks, sufficient muscle power to breathe unaided, provided they can be kept alive by the respirator and free from pneumonia for that period.

In the individual patient with "bulbar" poliomyelitis without paralysis of the intercostal muscles or of the diaphragm it is often difficult to untangle the causes of the respiratory difficulty. In some cases the respiratory disturbance seems purely "central" in origin, and may make itself manifest by shallow irregular respirations or by jerky spasmodic inspiratory efforts, sometimes almost amounting to a succession of hiccoughs. If the disturbance is purely central in origin and the patient's own respiratory efforts unsuccessful in properly ventilating the lungs, the respirator may justifiably be given a therapeutic trial. For the most part, however, such patients seem little helped by the apparatus. Their own irregular, inefficient respiratory efforts do not synchronize with the rhythm of the machine, but prevent its effective action. In a few cases, however, excellent results have been obtained, particularly satisfying since these patients, when they do recover, are restored to complete health without the pitiful paralysis resulting in the spinal types of the disease. It seems at present that trial alone will determine when these "bulbar" patients will be aided.

In so far as the respiratory disturbance of the "bulbar" type of the disease is due to pharyngeal paralysis with resultant interruption of

inspiration due to unswallowed pharyngeal secretions, it seems quite illogical to hope to obtain aid by artificial respiration. The treatment of this condition should be directed vigorously toward keeping the pharynx free from secretions. Postural drainage and aspiration of the pharynx may be necessary. Vomiting with a consequent choking attack and resultant nausea and increased pharyngeal secretion can best be prevented by rigidly refraining from giving anything by mouth, either directly or by tube, until all fever has gone and some appetite has reappeared. Fluids and carbohydrates sufficient to prevent dehydration and ketosis can be administered satisfactorily parenterally and by rectum for long periods.

Orthopedic experience seems to show that the greatest possible return of function with the least resulting deformity can be obtained by placing a muscle of an extremity at absolute rest as soon as any paralysis is discovered. Although the parallelism is not exact, it seems rational to adopt so far as possible the same policy toward the respiratory muscles, and to make use of the respirator long before there appear such gross evidences of paralysis as severe distress and cyanosis. Moreover, although it is a matter that is difficult of proof, it seems possible that anoxemia in itself, such as occurs in an attack of cyanosis from whatever cause, may bring about an increase in the damage resulting from an acute inflammatory lesion in the medulla or cord.

The early evidences of paralysis of the intercostal muscles or of the diaphragm may be difficult to recognize and to interpret. Wakefulness, anxiety, restlessness, an increase in respiratory rate, the use of the alae nasae, a slight respiratory grunt, disinclination to talk, or a curious, frequently interrupted, monosyllabic speech, may all precede more marked evidences of paralysis. Occasionally a slow, irregular, shallow respiration surprisingly conceals a respiratory weakness. None of these signs are, of course, specifically indicative of paralysis of the muscles of respiration but should demand very careful examination.

In a child who will not coöperate by "taking a deep breath" it may be helpful in the demonstration of a partial paralysis of the muscles of respiration to inhibit the action, first of the intercostals, and then of the diaphragm, by splinting the chest or the abdomen with the hands and thus forcing the alternate respiratory muscles to greater action. Paralysis of both shoulders is so frequently associated with paralysis of the intercostal muscles that when this is detected in the acute stage of the disease where further extension might occur, the respiratory muscles should be carefully watched. With any evidence of respiratory weakness or with paralysis of both shoulders in the acute stage of the disease, every effort should be made to move the patient to a respirator. Paralysis may extend with such rapidity that an hour or two may change a situation where careful and deliberate arrangements can be made, to one which necessitates desperate speed with frequently resulting harm and distress to the patient.

Probably the greatest danger incident to the prolonged use of a respirator lies in the difficulty of caring for the patient as a whole. In the last analysis the survival of a patient with paralysis of the respiratory muscles may depend just as much on proper medical care as on the mechanical efficiency of the respirator. The patient's position in the machine must be regularly changed. In cases of simple paralysis of the respiratory muscles, hypostatic pneumonia is the complication most feared. With moderate ingenuity it is possible in most models of the machine to give enemas and fluids by rectum and by hypodermoclysis, and to keep the patient clean and comfortable with only momentary interruption of respiration.

Because of the frequent difficulty in determining the exact mechanism of respiratory failure in patients with poliomyelitis it seems justifiable, when in doubt, to offer such patients a therapeutic trial in the respirator.

MISCELLANY

MASS WARFARE ON MALARIA WAGED BY PALESTINE DOCTORS

Malaria, which scourges whole Arab village populations in certain marshy districts in Palestine, is being subjected to mass attack by a medical corps with headquarters at the Hebrew University in Jerusalem. The afflicted Arabs, far from being hostile toward their Jewish medical visitors, have been coöperating with them readily. The first step was to find an effective mass treatment of the type of malaria. It was found that by combining quinine with plasmochin, one of the newer synthetic quinine derivatives, greater effect on the malaria parasites could be obtained, with less ill effect on the patients. In two communities of Arabs in marshy regions men, women and children, even babies less than two years old, were given two doses daily through five days. About 75 per cent. of adults and 85 per cent. of all children received the treatment. Blood examinations disclosed the presence of malaria germs in 28 per cent. of the total at the beginning of the period, and in 7 per cent. at its end.

A discouraging feature of the work is the quickness with which the cured patients become reinfected. New cases appeared in less than three weeks. Furthermore, other studies have shown that the local anopheles mosquito is often found more than eight miles away from the nearest breeding place. The final clearing of this region will therefore require a long and hard-fought campaign. — *Boston Evening Transcript.*

MASSACHUSETTS SOCIAL WORK CONFERENCE

The 27th session of the social work conference of Massachusetts will be held at the New Ocean House, Swampscott, on September 25 and 26. Dr. George H. Bigelow, commissioner of public health, has been elected president of this year's conference and has announced that there will be three main divisions in the conference program: Unemployment, Mounting Cost of Relief, and the Child.

Dr. Bigelow, as a member of the White House Conference on Child Health and Protection, will discuss "What Massachusetts Should Do About the White House Conference."

Other speakers will be Dr. Richard C. Cabot, who will speak at the dinner meeting, and C. C. Carstens, executive secretary of the Child Welfare League of America, who will discuss child welfare.

APPOINTMENT OF DR. JOSEPH E. BARRETT

Dr. Joseph E. Barrett, for three years assistant superintendent of the Taunton State Hospital, has been appointed assistant to the state commissioner of mental diseases by Dr. George W. Kline, commissioner.

Dr. Barrett, a native of Arkansas, is 40 years of age. He is a graduate of the University of Tennessee medical school. Before his appointment at Taunton he had served as resident interne at the St. Louis City Hospital and as assistant physician at the Arkansas State Hospital.

He is a member of the Bristol County Medical Society, the Massachusetts Medical Society, the American Medical Association, New England Society of Psychiatry, Massachusetts Psychiatric Society, American Psychiatric Association, Taunton Doctors' Club and Taunton Lions Club.

ROME STUDENTS FAVOR MEDICINE

The number of students in the various Italian universities for the academic year 1929-30 was 29,630, as against 26,932 in the preceding year, according to a recent news item. The greatest number of students, 9990, followed the careers of medicine and surgery. Law was next with 9864. There were only 2500 students in the faculty of letters and philosophy.

INSULIN-DESTROYING ENZYME

A new theory of diabetes, indicating that it comes from a destroying enzyme, was presented to the American Chemical Society by Dr. I. M. Rabinowitch of the Montreal General Hospital. His evidence suggests that diabetes is not due to defective insulin production, but to destruction of insulin formed normally, according to an Associated Press dispatch.

"Blood of diabetics," said Dr. Rabinowitch, "contains an enzyme which destroys insulin. A large number of conditions cause excess accumulation of this enzyme in the blood. Infection is the commonest cause of the enzyme accumulation. Diet influences the amount of this enzyme in the blood. A large amount of fat increases, while carbohydrates (sugars) decrease it. This suggested the possibility of giving large amounts of carbohydrates without the use of insulin or with lesser quantities than required with the old diets, providing the fat content of the diet is kept at a definitely known level."

PREVALENCE OF COMMUNICABLE DISEASES

The United States Public Health Service has issued the following statement regarding the prevalence of communicable diseases in the United States.

The 92 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,520,000. The estimated population of the 86 cities reporting deaths is 31,010,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics. Weeks ended August 15, 1931, and August 16, 1930.

CASES REPORTED

	1931	1930	Est. Exp.
Diphtheria:			
46 States	555	572	—
92 cities	207	187	378
Measles:			
45 States	884	738	—
92 cities	246	200	—
Meningococcus meningitis:			
46 States	69	101	—
92 cities	32	51	—
Poliomyelitis:			
46 States	1,040	303	—
Scarlet fever:			
46 States	724	642	—
92 cities	213	184	243
Smallpox:			
46 States	113	214	—
92 cities	7	16	12
Typhoid fever:			
46 States	964	1,044	—
92 cities	135	128	165

DEATHS REPORTED

Influenza and pneumonia:			
86 cities	292	324	—
Smallpox:			
86 cities	—	—	—

PUBLIC HEALTH ACTIVITIES OF JULY

The following were among the noteworthy public health activities of the month of July, according to the *Statistical Bulletin of the Metropolitan Life Insurance Company:* A bill providing for the establishment of Pennsylvania's State Psychiatric Hospital, in Pittsburgh, was signed by the Governor. This Hospital will become an important teaching center for medical students, general practitioners, nurses, psychologists and social workers. Gifts for medical research, totaling nearly $120,000, were an-

nounced by Columbia University. Among them was one of $45,000 from the Rockefeller Institute to finance continued research on the common cold. Another important contribution ($30,000) was made by Edward S. Harkness, for research in children's diseases. Four Michigan counties have now joined a recently organized health unit. The estimated cost is $26,000 a year, of which $21,000 will be supplied by the Couzens Fund, the Rockefeller Foundation and the National and State governments, with the counties contributing the remaining $5,000. The unit will consist of four full-time employees—a physician, a nurse, a sanitary inspector and a dentist. It is expected that the unit will be operating by early fall.

MORTALITY RATES

Telegraphic returns from 82 cities with a total population of 36,000,000 for the week ending August 29, indicate a mortality rate of 9.7 as against a rate of 10.3 for the corresponding week of last year. The highest rate (19.3) appears for Camden, N. J., and the lowest (4.6) for Grand Rapids, Mich. The highest infant mortality rate (15.7) appears for Yonkers, N. Y., and the lowest for Des Moines, Iowa; Duluth, Minn.; Long Beach, Calif.; Lynn, Mass.; Miami, Fla., and Tacoma, Wash., which reported no infant mortality.

The annual rate for 82 cities is 12.3 for the 35 weeks of 1931, and the same rate appears for the corresponding weeks of 1930. — *Issued by the Bureau of the Census.*

UNITED STATES PUBLIC HEALTH SERVICE REPORTS ON POLIOMYELITIS SITUATION

With epidemics active in New York, Connecticut, Massachusetts, and Michigan, there were more than three times as many cases of infantile paralysis in the United States on September 5, 1931, as on the corresponding date of 1930, according to figures made public September 10 by the Public Health Service and published by the *United States Daily.*

The total for September 5, 1931, was 1,370, as compared to but 422 for September 6 of last year. This figure represents an increase of 341 cases over the number recorded for August 8, 1931, when the total was 1,029. Since that time new cases have been reported each week, showing a steady increase during the last month, with a new high mark reached September 5. Before this time, the greatest number was noted on August 22, when 1,135 cases were recorded.

Although there is no way to tell definitely how long the epidemic will last, it was stated orally that smaller epidemics during the last three years have had a seasonal duration of about five months. The present epidemic, however, is considerably larger than those of the last three years, and it may not show a similar seasonal prevalence.

The following information was made available:

The epidemic is most severe in New York, where there are 554 cases. New York City alone reports 347 cases. Massachusetts is next, with 184 cases. Connecticut records 162; Michigan, 107. On September 6, 1930, cases in these four States totaled but 67.

From January 1 to August 15, 1931, there were 3,936 cases reported throughout the country. Of these, 2,899 were in the Middle Atlantic and New England States. New York State reported 2,083, of which 1,825 were in New York City. The Borough of Brooklyn recorded approximately 1,000 of the total cases in the city.

The 3,936 cases of the disease reported in the country as a whole during the period from January 1 to August 15, may be compared with 2,081 and 917 in the corresponding periods of 1930 and 1929, respectively. The year 1929 had a low incidence of infantile paralysis, but the disease was epidemic in the central and western parts of the United States in 1930.

Considering the situation in broad geographic areas, there were in the New England and Middle Atlantic States about the same number of cases in 1930 as in 1929, but the number of cases reported in 1931 (January 1 to August 15) is nearly 12 times the number for the corresponding period of 1929.

In the East North Central States there was little excess in 1930 over 1929, but up to August 15, 1931, there have been nearly three times as many cases as in the corresponding period of 1929.

In the South Atlantic States the number of cases reported August 15 since the first of the year is less than the number reported in either 1930 or 1929, and the number in 1930 was less than in 1929.

In the West North Central States both 1931 and 1930 are materially above 1929, the ratios of occurrence in those years to that for the corresponding part of 1929 being 2.9 and 3.2, respectively.

In the South Central States the number of cases reported in 1931 represents only a slight increase over the corresponding part of 1929, but in 1930 there were 4.1 times as many cases as in the corresponding part of 1929.

In the Mountain and Pacific States the 1931 reports are only 1.6 times the corresponding period of 1929, but in 1930 there were 6.7 times as many cases as in 1929.

To summarize, in the New England and Middle Atlantic States the incidence of infantile paralysis was about normal in 1930, but a very sharp and considerable epidemic is in progress in 1931. In the South Central and Western regions the incidence in 1930 was considerably above normal, but there has as yet been little increase in the cases in 1931. In the North Central States the disease was somewhat above normal in both 1930 and 1931.

CORRESPONDENCE

A FURTHER CONSIDERATION OF STATE MEDICINE

September 4, 1931.

Editor, *New England Journal of Medicine,*

Dear Sir:

I challenge the arguments of Dr. Dameshek against State Medicine published in your Journal of June 4, 1931, vulnerable because of exaggeration and facetiousness, with the enclosed letter to Dr. J. F. Baldwin of Columbus, Ohio, a fellow advocate of the reformation of medicine, from no less an authority than Alfred Cox, O.B.E., Hon. M.A., (Durh.), LL.D., M.B., Medical Secretary of the British Medical Association.

Yours truly,
G. W. HAIGH.

BRITISH MEDICAL ASSOCIATION

Medical Secretary:
Alfred Cox, O.B.E., Hon. M.A. (Durh.),
LL.D., M.B.

Head Office:—British Medical Association
House, Tavistock Square,
London, W.C.I.

13th August, 1931.

Dear Dr. Baldwin:

I have never failed to impress upon American visitors my feeling that some extension of state medicine is bound to come in the United States and that the present depression will hasten it. Moreover, I am more strongly than ever of the opinion that it is up to the medical profession to furnish concrete ideas as to how this service should be given and not to wait until the politicians make a scheme of their own and force it on the profession. Our experience in England showed that the work we did on contract practice before the Insurance Act was introduced was invaluable, because it focused our ideas and made us more able than we should otherwise have been to put up a fight when the politicians came along with a scheme which we felt would be intolerable if put into action.

Now as regards Dr. Dameshek's statements: I do not know that I have much to add to what I said in my papers in 1923. Our system on the whole has stood the test pretty well, except for one thing which is common to all systems of state medicine that I know of. The provision of cash benefits on an insurance basis, combined with the provision of medical attendance, seems always to lead to a lowering of the morale of the persons insured, or at any rate a tendency to get sick more easily. When I was a Club doctor in an industrial area it was a common experience to find that members of the Club, realizing that it was a mutual insurance affair, were generally most anxious not to make a claim on the funds if they could help it, but one sees no such reluctance now. The action of our Government and other Governments in giving considerable subsidies to people out of work has made them less self-reliant and more inclined to look for sources of easy income, and in this softening of the morale the medical profession has not been left untouched. It takes a strong man to resist an appeal for a certificate from a person who cannot be said to be malingering but who, the doctor feels, might, if he would muster up a little resolution, go on working with benefit to himself. And so you have the painful problem of a steady increase in the demands for the cash benefits which can only be secured on the production of a medical certificate. This is the problem which is worrying us most now and which we are doing our best to solve by instituting disciplinary procedure against men who are proved to be slack in this matter of certification. The machinery has not come into operation yet, but it will do so shortly and one hopes that the very fact of its existence will be a warning to that minority who give certificates too easily.

Of course, the out-and-out supporter of state medicine will say that if the doctor were on a salary and had no direct obligation to the patient he would not be so easy about giving certificates, but this I doubt. And even if such a system did succeed in making the doctor more strict as regards his certificates it would, in my opinion, tend to make him less of a human being dealing with human beings and more of an official dealing with people in the mass, a position which I, as a potential patient, cannot contemplate for a moment with equanimity.

I still think the ideal method of getting medical attendance is to choose your doctor for yourself and pay him out of your own pocket, getting rid of him if he is not satisfactory. But experience all the world over shows that this ideal cannot be realized and on the whole I think the insurance system, where the insured person has to pay regularly out of his wages and knows he is paying; where he is allowed to choose his doctor from the list of the men willing to serve; and where the doctor is left free to do private practice amongst those who prefer to pay by the old method; is the best compromise we can get. I am as firmly opposed as ever I was to a complete state service. No doctor, it seems to me, can be a good doctor unless he is an individualist and as a patient I do not want to be regarded as a member of a regiment, to be made fit to work as quickly as possible and with no waste of sympathy when I am ill. We have a complete state system in the Army, and men who have been there will tell you that it is all very good when you are *really* ill and require hospital treatment, but if you are suffering from something smaller which needs humane handling and a little human sympathy, you are not likely to get it because you are not regarded as an individual patient who has gone to the doctor he thinks is the best man for him, but as part of a crowd.

Now to take some of Dr. Dameshek's statements. In his second paragraph he says, "It is the State which directs, not the medical profession." This

is an overstatement, because we have proved that it is possible to have a system in which the medical profession itself takes a very active part in the direction, and I am sure our Ministry of Health would agree that the comparative smoothness with which our system works is largely due to the fact that the organised medical profession does take a very active part in the administration of the system.

About the middle of paragraph 5 Dr. Dameshek says that partial socialism is decidedly unfair and that you should socialise everything and everybody, or nothing and nobody. This to my mind is an injudicious statement, because I believe that most men are of the opinion that there are some things which are best done by the individual and other things which are best done by the community. I do not in the least mind socialising the water supply or the supply of parks and recreation grounds, because I think that can best be done by the community. But I object to the socialisation of persons to the extent to which it has been done in Russia, because I believe it is not in accordance with the best instincts of human nature and it does not result in the best service to the community.

In paragraph 6 I entirely agree when he says that the socialised profession becomes immediately "the football of the politicians". That to my mind is one of the greatest dangers and one we have had to fight continuously. So far the cloven hoof of the politician has been little seen in the administration of our National Health Insurance Act, but we have had one or two instances where the Minister of Health has given way to the pressure of his political party and these instances have given us a good deal of alarm, though they did not directly affect us as a profession.

In some of the continental systems the politician has, of course, made life almost unendurable for the doctors. In Austria, at one time, when the socialists were in power, I am told that the Roman Catholic doctors were deprived of their insurance work; and when the Catholics came into power the socialist doctors were turned out. Heaven help us when the provision of medical attendance, a thing of such particular personal import to every individual, becomes the plaything of the politician.

I agree entirely with his statement at the end of this paragraph that "to conclude from the success of the state in the handling of such impersonalities as the water supply that it can therefore step in and deal adequately with the intricacies and individualities of the relation between the physician and his patient is, it seems to me, to conclude wrongly".

In paragraph 7 I agree that the argument that because the State can run its medical practice in the Navy therefore it can run it among the civilian population is a fallacy. The personnel of the Navy is under constant discipline and can be ordered to do things. The man in the Navy will put up with things that he has no right to be asked to put up with in private life. Moreover sailors are all picked lives.

In paragraph 9 Dr. Dameshek mentions the ways in which the individual doctor tries to get into the good graces of his panel patients, and he suggests that giving him good service is the least effective. I do not agree. I have the privilege of coming across a large number of panel doctors and the most successful of them are the men who do their work conscientiously and try to make no distinctions between their panel patients and their private patients. Moreover, when I am told that a man cannot refuse certificates because he is afraid of offending his patients, I always contend that the average patient knows a good man when he sees him and respects and trusts an honest doctor more than a more complaisant one, and that in the long run the honest doctor wins. If I did not believe this I should be inclined to throw up the sponge and despair of human nature and of the future of our profession.

Lower in the same paragraph Dr. Dameshek speaks of "wholesale malingering". I can most confidently assert that there is no such thing. Malingering I take to be the deliberate and fraudulent attempt of a person to simulate disease. The weakness in State insurance is not that at all. It is that of the man who is "not very well" and who, if circumstances compelled or encouraged him, would go on working and throw off his little indisposition, but to whom it is difficult to say "You are not ill at all." I am confidently assured by all doctors that deliberate malingering is a very rare thing.

I note also that Dr. Dameshek quotes the *Birmingham Medical Review*, but as I happen to know the man who writes in the *Review* (a very good friend of mine, but a very temperamental person) I do not attach so much weight to his statements as Dr. Dameshek evidently does. The very man who wrote the statement referred to is quite capable of telling any patient who tries to get a certificate when he ought to be at work that he has not the least intention of giving him one, and that the best thing he can do is to get back to work. You can take it from me that Dr. Layton is a very popular doctor who has a good-sized panel and whose popularity does not depend "almost entirely on willingness to accede to demands".

In paragraph 10 Dr. Dameshek talks about the Committee on the definition of drugs. He does not mention the fact that this Committee is entirely composed of men who are themselves insurance doctors and who were nominated by our Association. They have given to a very difficult task a great deal of care, for which we are very grateful. The insurance system guarantees the provision of all *necessary* drugs to every insured person who needs them, but it does not guarantee to feed his family on extract of malt or to give him any kind of fancy well-advertised alleged remedy which is being boomed by the manufacturers. Dr. Dameshek talks about "the continual harassment of outside

control," but as a matter of fact the average man who does his work well is never conscious of this harassment. The man who is harassed, and ought to be harassed, is the man who is open to every suggestion from the manufacturing chemist and orders things for which there are simpler, and less expensive substitutes—and equally efficacious substitutes.

Beware also of the "physician Member of Parliament" mentioned in the same paragraph. He is a man who has never done any insurance work, being a skin specialist, and whose bias against our insurance system is well known. On the occasions when he comes to our Representative Meeting and airs his views he gets little or no support, but being a Member of Parliament his words carry a good deal more weight with the outside public than they ought to do.

I have no copy of the Report of the Commission on Medical Education in front of me, but if it said that most of the panel doctor's time is "spent in filling out certificates, making records and addressing communications to the various Committees and government agencies" this is a gross overstatement of the facts. There is a fair amount of record keeping, and I do not believe that any doctor can conduct a practice properly without keeping records, but in a well-conducted practice the clerical work is by no means the overwhelming burden which it is represented to be in this particular paragraph. As for all this talk about the regulations, I wonder whether it has ever occurred to Dr. Dameshek that all of us as citizens are surrounded all day long by regulations made by Parliament, but that few of us are conscious of them. It is a fact that the average insurance doctor does his work quite unconscious of most of the regulations that have been laid down and that these are meant to catch the careless and indifferent and not to hamper the good man, just as the laws regulating theft, dangerous driving of motors, etc., are made to catch the man inclined that way and not the ordinary honest and careful citizen.

In paragraph 11 Dr. Dameshek speaks of a doctor seeing 84 persons in three hours and spending three-fourths of those hours in filling out blanks. All I have to say is that the picture is grossly overdrawn and not at all typical of the real thing. The present position is that the average insurance doctor, who has 1000 persons on his insurance panel, gives them an average attendance of about 4.5 items a year, that is 4,500 attendances in a year for the whole 1000. If you divide this by 300 (i.e., ignoring Sundays and holidays) you get 15 attendances a day, and of these probably 10 will be at the doctor's house and 5 at the patient's home. All I can say of the alleged doctor who sees 84 persons in 3 hours is that this must have been a quite unusual occurrence in an exceptional practice and at a very exceptional time. I won't say it couldn't happen, any more than I am prepared to deny that miracles *may* happen. I remember when I was in practice before the Insurance Act came in there were occasionally epidemics of influenza, when I saw as many as 60 or 70 people *in a day* and my surgery would be crowded with people during surgery hours—and very hard work it was. But I do not know of any system which can prevent that kind of thing, and I object to an extraordinary case, which, if it ever existed, must be very exceptional, being quoted as if it were something of quite common occurrence. And I deny absolutely that the doctor in question could spend three-fourths of those three hours in "filling out blanks".

I say nothing about Dr. Dameshek's examination of the position in Germany. I know the system there is very bad and the doctors very discontented. But the German system has never been so good as ours, inasmuch as it has been far more the plaything of the politician than ours has been, and the organised profession has had much less to do with the administration of the medical part of the system.

I see that in paragraph 15 Dr. Dameshek says the insurance doctor "usually does not even examine the patient". I wonder where he gets that from. I should say that in all kinds of practice there is much less careful examination of patients than ought to be done, but I should also say that the average doctor, insurance or otherwise, does examine patients who on superficial inspection appear to need it. In fact to suggest that the average doctor is satisfied to treat his patients without examination is an insult to members of the profession and a grave indictment of a medical organisation which allows its members to take part in such a system. The thing is a caricature.

You will see that I have a good deal of sympathy with Dr. Dameshek in his opposition to complete state medicine, but I should accept such a system if I thought it were the only way of providing the great mass of the public with the medical attention it needs and on terms it can afford. I believe our insurance system is a good working compromise and I have seen no reason to change that opinion since I wrote my papers for the *Journal of the American Medical Association*.

You may make any use you like of this letter, providing my objections to complete state medicine are not concealed.

As the Secretary of a medical organisation with a great experience in these matters, I would with all my force urge similar medical organisations throughout the world not to shut their eyes to the developments that are going on and not to leave the politician to find the answer to the problem "how are we to ensure that our working population can get the medical attendance it deserves on terms which it can afford, and in a way which a self-respecting citizen, not desiring charity, can accept".

Yours sincerely,

ALFRED COX, *Medical Secretary.*

Dr. J. F. Baldwin,
115 South Grant Avenue,
Columbus, Ohio.

CHLOROFORM IN OBSTETRICS

Columbus, Ohio,
September 2, 1931.

Editor, the *New England Journal of Medicine,*

Dear Doctor:

I have read with much interest the editorial on "Painless Maternity" in your August 27 issue, and it has caused me to wonder a little as to just the actual foundation there is for the questionable reputation of chloroform as an anesthetic in obstetrical work.

My preceptor was Dr. J. C. Reeve, of Dayton, Ohio, who died a number of years ago when well up in the nineties. Dr. Reeve was one of the founders of the American Gynecological Society, and medically put Dayton on the map. He was a thorough student, had a large library and contributed a number of articles to medical literature. He had taken from the start a deep interest in the subject of anesthetics, and, if I remember correctly, wrote several articles on anesthesias for encyclopedias. During the years that I was in his office, and for a good many years after, he was a staunch advocate of the A.C.E. mixture, which had been most highly recommended by a special Commission of the British Medical Association. He regarded it as the safest anesthetic agent and almost fool-proof. I gave anesthetics for him a number of times, using that agent. When I went to Philadelphia to Jefferson, Dr. Samuel D. Gross was then in his prime and used chloroform exclusively, while Dr. Joseph Pancoast, his surgical associate, used nothing but ether. Both of them conducted large surgical clinics, and during my two years if there were any deaths from anesthetics they were successfully concealed; but I have no reason to think they had any.

Dr. Reeve was a staunch advocate of chloroform in obstetrics. He gave it largely in his own practice, as did his associates in Dayton. When I located in Columbus there was not a doctor in the city, so far as I could learn, who ever dreamed of giving an anesthetic in labor cases, but all allowed their patients to suffer in the Biblical way, even if the use of forceps became necessary. I commenced at once using chloroform after Dr. Reeve's method, and after a while some of the women informed their family physicians that if chloroform were not used they would send for me; and in that way the use of chloroform was rather forced on the local profession. At that time I presented a paper on such use of chloroform before our State Medical Society, and that paper was widely republished in whole or in part by medical journals throughout the country. In preparing that paper I assumed that there had been deaths from the administration of chloroform, but on submitting it to Dr. Reeve he promptly challenged me to show a single case in which death had occurred when the administrator was a physician. I spent considerable time in hunting up the matter, but was unable to find a single recorded death from chloroform in obstetrics; I could not even find a death when the chloroform was administered by an outsider, but such deaths, I assumed, would probably not be reported.

Just after midnight last night I was called over to the hospital to see an obstetrical case in consultation, and found that the night supervisor was giving the patient chloroform, and apparently very satisfactorily and very cautiously. I found that she is in the habit of giving chloroform under these circumstances for different physicians who do their work in the hospital, with no ill effects reported.

I am, of course, quite familiar with what has been done in the way of twilight sleep and particularly the work of Gwathmey and others as to the combination of anesthetic agents; but the general practitioner must still rely upon chloroform or some other anesthetic agent which can be used with the maximum of simplicity.

In my paper* I state the reasons why chloroform would seem to be exceptionally safe in the pregnant woman.

We all know that chloroform is used very extensively through the south and through the so-called "torrid zone" in general. A few years ago Colonel Smith, the famous eye specialist of India, was in this country and had a long clinic here at Grant Hospital, in which he extracted a large number of cataracts. His coming had been previously announced, and all details were looked after by the eye specialists, many of whom came from distant parts of the country to watch his work; one, at least, from California. Dr. Smith was brought to my office by one of the eye specialists and we spent an hour or two in discussing his work. I found that he used chloroform exclusively, and it was given by an ordinary coolie whom he had personally instructed. He assured me he had never had a death from such administration. At the time that I wrote my article our southern brethren were apparently using chloroform with great satisfaction, and we know that it is still extensively used in England, although not exclusively.

Of course in those early years we heard nothing of the effects of chloroform on the liver, and I confess that I have had grave doubts as to the production of any serious liver trouble by any *legitimate* use of chloroform. I may be entirely wrong, but I certainly would like to see the evidence to that effect thoroughly presented.

It seems to me that some young physician, anxious to do some research work, could very well spend considerable time in looking up the whole literature bearing on this subject, and let us know in actual statistics just what the danger is of chloroform in general and especially of its use in obstetrics.

In the popular mind the ostrich hides itself from its pursuer by burying its head in the sand, and in China physicians are said to be paid while the patients are well but not while the patients are sick; and there are doubtless other illustrations of

*A Plea for the More Frequent Use of Chloroform in Obstetrics. Baldwin, J. F., Transactions of the Ohio State Medical Society. June, 1890.

widespread opinions having absolutely no foundation in fact. We know how easy it is to give a dog a bad name with dire results for the dog. I sometimes think there is a good deal of that in these statements in regard to chloroform.

Very sincerely yours,

J. F. BALDWIN.

NOTICES

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service will be held at the following-named places on November 2, 1931:

Washington, D. C.
Chicago, Illinois
New Orleans, La.
San Francisco, Cal.

Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers, and undergo a thorough physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Request for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

H. S. CUMMING, *Surgeon General.*

RADIO HEALTH MESSAGES

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZA. Thursdays at 5:17 P. M.

September
24 Nerves

October
1 Gall Stones
8 What a Health Examination Means
15 Sunlight and Ultra-violet Rays
22 Hospitals—Then and Now
29 What the Public Should Know of Diabetes

November
5 High Blood Pressure
12 The Care of Pulmonary Tuberculosis
19 Accidents in the Home
26 Fatigue as a Symptom of Disease

December
3 Overweight—Cause and Prevention
10 Can We Prolong Life?
17 Pasteurized or Raw Milk
24 Public Health in the Coming Year
31 Mental Health

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 12:30 P. M.

The various activities of the Department are discussed by the Directors of its nine Divisions.

RADIO HEALTH FORUM

Directed by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 4:50 P. M.

Queries from the public are answered under the sponsorship of the Department.

Questions on Health and Prevention of Disease may be sent to: Radio Health Forum, State Department of Public Health, State House, Boston.

REPORT OF MEETING

NEW ENGLAND SURGICAL SOCIETY

The fourteenth annual meeting of the New England Surgical Society was held at Portland, Maine, September 11 and 12, 1931. The Committee of Arrangements had engaged the Black Point Inn at Prout's Neck as headquarters for the two days and quite a number of members assembled there late Thursday afternoon and evening. In the morning a series of operative clinics and a dry clinic were conducted at the Maine General Hospital. Following a luncheon served by courtesy of the hospital the members adjourned to the Black Point Inn, where the following papers were read and discussed:

Color Photography of Surgical Specimens
Dr. G. A. Moore, Brockton, Mass.

Cranio-cerebral Injuries from the Viewpoint of the General Surgeon
Dr. E. H. Risley, Waterville, Maine.

Fractured Spines
Dr. G. M. Sabin, Burlington, Vt.

Acute Intraspinal Epidural Abscess
Dr. W. J. Mixter, Boston

Colitis Resulting in Obliteration of the Lumen of the Intestine
Dr. F. B. Lund, Boston

Resection of the Right Colon and Anastomosis of the Ileum to the Transverse Colon by the Mikulicz Plan
Dr. F. H. Lahey, Boston

Plastic Restoration of the Lower Lip
Dr. E. M. Daland, Boston

In the evening the annual banquet was held at the Black Point Inn. The President, Dr. Alfred M. Rowley of Hartford, Connecticut, presided and read as his Presidential Address a very interesting paper concerning the prominent physicians of Connecticut during the Colonial period. Other speakers were the Hon. Carol S. Beedy, Representative to Congress from the First Maine District Dr. Frank W. Watson,

and Dr. Robert B. Osgood. About seventy-five attended the dinner.

Saturday morning the following papers were read:

Prostatic Pitfalls
Dr. A. H. Crosbie, Boston

Spontaneous Intraperitoneal Rupture of Tuberculous Bladder
Dr. Benjamin H. Alton, Worcester

Dermoid Cysts and Teratoma of the Mediastinum
Dr. R. C. Cochrane, Boston

Umbilical Hernia
Dr. R. H. Miller, Boston

Operative Procedures in Common and Hepatic Duct Injuries
Dr. H. M. Clute, Boston

Intestinal Diverticula
Dr. J. W. Jameson, Concord, N. H.

Thyro-Glossal Duct
Dr. H. G. Jarvis, Hartford, Conn.

At the annual meeting the following officers were elected:

President, Frank H. Lahey, M.D., Boston, Mass.
Vice-President, Carl M. Robinson, M.D., Portland, Me.
Secretary, John M. Birnie, M.D., Springfield, Mass.
Treasurer, Peer P. Johnson, M.D., Beverly, Mass.
Recorder, Walter G. Phippen, M.D., Salem, Mass.

After the annual meeting the members were entertained by the Maine members at a shore dinner at Pillsbury's, Pine Point, Maine. Over eighty men attended one or all the exercises of the meeting to their mutual benefit and enjoyment.

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

September 22, 23, 24—The Seventh Clinical Congress of the Connecticut State Medical Society. See notices on page 365, issue of August 13, and page 513, issue of September 3.

October 5, 6, 7, 8—American Congress of Physical Therapy. See notice on page 272, issue of July 30.

October 8-9—Vermont State Medical Society. See page 493, issue of September 3.

October 12-16—Announcement of the Clinical Congress of the American College of Surgeons. See page 1175, issue of May 28.

October 12-16—Special Course in Anesthesia. See page 555, issue of September 10.

October 19-23—International Assembly of the Interstate Postgraduate Medical Association of North America. See page 1125, issue of May 21, and page 555, issue of September 10.

October 19-30—Graduate Fortnight of the New York Academy of Medicine. See page 1230, issue of June 4, and page 465, issue of August 27.

April 4-8, 1932—The American College of Physicians. See notice on page 1232, issue of June 4.

Autumn 1931—Spring 1932—International Medical Postgraduate Courses in Berlin. See page 468, issue of August 27.

DISTRICT MEDICAL SOCIETIES

Franklin District Medical Society

Meetings will be held on the second Tuesday of November, January, March and May at the Weldon, Greenfield, at 11 A. M.

CHARLES MOLINE, Secretary.

Worcester District Medical Society

Wednesday evening, October 14, 1931—Worcester Chamber of Commerce Rooms, Franklin Street, Worcester, Mass. 7:45—Program: Recent Advances in the Etiology and Treatment of Cancer, by Dr. Clarence C. Little, Bar Harbor, Me.

Wednesday evening, November 11, 1931—Worcester Chamber of Commerce Rooms, Franklin Street, Worcester, Mass. 7:45—Program: Bone Lesions of Congenital Syphilis, by Dr. Stafford McLean, Clinical Professor, Diseases of Children, Columbia University College of Physicians and Surgeons, New York City.

Wednesday evening, December 9, 1931—Worcester Chamber of Commerce Rooms, Franklin Street, Worcester, Mass. 7:45—Program: Subject in the field of Eye, Ear, Nose and Throat to be announced later.

Wednesday evening, January 13, 1932—Worcester City Hospital, Worcester, Mass. 6:30—Dinner, complimentary by City Hospital. 7:45—Program: To be announced later.

Wednesday evening, February 10, 1932—Worcester State Hospital. 6:30—Dinner, complimentary by the Worcester State Hospital. 7:45—A psychiatric program to be announced later.

Wednesday evening, March 9, 1932—Memorial Hospital, Worcester, Mass. 6:30—Dinner, complimentary by Memorial Hospital. 7:45—A pediatric meeting with subjects to be announced later.

Wednesday evening, April 13, 1932—Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11, 1932—Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.

BOOK REVIEW

General Surgery. Edited by EVARTS A. GRAHAM. (The Practical Medicine Series, 1930.) Price $3.00.

This book is a selected review of the general surgical literature of 1930 with comments by the editor as he sees fit. It is one of a series of eight volumes. The subject matter is divided for the most part anatomically though there are a few general headings as well. Anesthesia-Analgesia, New Instruments and Apparatus, Asepsis and Antisepsis, Operative Technic, Wound Healing and Pathologic Interventions, are dealt with as separate subjects. In reviewing each article the editor has taken the essential points, condensed the details and produced a short, easily readable digest. The length of each varies somewhat with the length of the original article and also with its relative importance as interpreted by the editor. In a book of this sort, it is, of course, inevitable that some worthwhile articles should be omitted. The student of a particular subject will no doubt find, upon reading the section of this book devoted to his hobby, that he has discovered in his own reading considerably more of value than is contained in the book. A moderate number of illustrations are used throughout.

To attempt to review in any detail this book, which is in itself an excellent review of eight hundred and four pages, would be futile. The book affords an opportunity for all surgeons and perhaps even more of an opportunity for physicians at large to assimilate the surgical advances of 1930 with a minimum of effort.